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Mid-Continent Crudes Are Reduced In Face of Overproduction

Staff Telegram

TULSA, Feb. 22

CRUDE oil prices in Oklahoma, Kansas, and north and central Texas were reduced from 15 to 39 cents a barrel today. The gravity differential, which has been five cents, was reduced to four.

Overproduction in the Seminole field in Oklahoma, and the knowledge that the crude oil purchasing companies must immediately start storing considerable crude in excess of current requirements was the cause.

The reduction was started by the Carter Oil Co., subsidiary of the Standard of New Jersey, and met almost immediately by the Prairie Oil & Gas Co., which extended the reduction to the Texas fields. The Carter purchases oil only in Oklahoma and Kansas. Magnolia, Sinclair, Humble, The Texas Co. soon followed in meeting the new price schedule.

THIS is the second time the Carter Oil Co. has led in changing the price of Mid-Continent crude. Last November it set a new price for Oklahoma-Kansas crude.

Under the new schedule Seminole grade crude of 41 gravity was cut 28 cents from $2.15 to $1.87.

It is estimated that crude in Oklahoma and Kansas is being placed in storage at the rate of 130,000 barrels daily. Carter itself averaged 35,000 barrels into storage daily last week. One Carter official stated Seminole crude had to come down in price if companies were to be forced to store it, as evaporation loss is great with such high gravity crude.

Seminole production is at a new peak, yesterday having been 325,262 barrels from 235 wells. It is within 5000 barrels of the highest figure ever set by Cushing, heretofore Oklahoma's greatest field. Seminole proper has 199 wells producing 265,432 barrels; Searight 19 wells producing 30,551 barrels; Earlsboro 15 wells producing 19,159, and Lima two wells producing 10,120 barrels. Oklahoma's total production is about 731,000 barrels daily at present.

The Carter and Prairie cuts were met on Feb. 22 by Humble Oil & Refining Co. in Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona, Tex. fields and by the Texas Co. in Oklahoma, North, north central and central Texas, and by other purchasers in Oklahoma—Kansas. No changes were made in gravity schedules by any companies.

Crude in Crane and Upton area in West Texas was reduced by the Humble from 1 to 11 cents per barrel, with below 26 gravity remaining 80 cents, and 4 cents additional for each full succeeding degree of gravity, up to 36 and above, which is $1.24.

HUMBLE also revised prices of Gray and Wheeler county crude in the Panhandle and established the 4 cent differential. In Gray county prices were reduced from 1 to 16 cents, the minimum grade of 28 to 28.9 remaining unchanged at $1, with 4 cents additional for each degree up to the maximum grade of 44 and above at $1.64. Wheeler county crude was placed on the same price basis as Gray, indicating an advance of from 1 to 10 cents on oil below 38 gravity, and a cut of from 1 to 6 cents on oil above 39 gravity. Wheeler county prices had been 10 cents below Gray county since Dec. 1, 1926. Hutchinson and Carson county crude, which is bulk of Panhandle production, remains unchanged at flat price of $1.25 per barrel.

Magnolia Petroleum Co. changes included Pine Island, Haynesville and Bull Bayou districts in Louisiana.

Coming Meetings

Ohio Gas & Oil Men's Association, Elks Home, Columbus, O., Mar. 1, 2.

Western Petroleum Refiners Association, Muehlbach Hotel, Kansas City, Mo., Mar. 3.

Minnesota Petroleum Association, Hotel Radisson, Minneapolis, Mar. 3, 4.

Independent Oil Men's Association of New England, American House, Boston, Mar. 9, 10.

National Petroleum Marketers Association, Congress Hotel, March 8, 9, 10.

American Association of Petroleum Geologists, Tulsa, Okla., Mar. 24, 25, 26.

American Oil Burner Association, Broadway Auditorium, Buffalo, N. Y., Apr. 5, 6, 7.

Petroleum Division American Chemical Society, Richmond, Va., Apr. 11, 12, 13, 14.

American Oil Men's Association, Congress Hotel, Chicago, Apr. 12, 13, 14.

National Petroleum Association, Riverside Hotel, Cambridge Springs, Pa., April 28, 29.

New Mid-Continent Prices, Compared with Old Nov. 2, Schedule

	New Prices	Old Prices		New Prices	Old Prices		New Prices	Old Prices		New Prices	Old Prices		New Prices	Old Prices
28-28.9	1.85	1.50	33-33.9	1.55	1.75	38-38.9	1.75	2.00	43-43.9	1.95	2.25	48-48.9	2.15	2.50
29-29.9	1.39	1.55	34-34.9	1.59	1.80	39-39.9	1.79	2.05	44-44.9	1.99	2.30	49-49.9	2.19	2.55
30-30.9	1.43	1.60	35-35.9	1.63	1.85	40-40.9	1.83	2.10	45-45.9	2.03	2.35	50-50.9	2.23	2.60
31-31.9	1.47	1.65	36-36.9	1.67	1.90	41-41.9	1.87	2.15	46-46.9	2.07	2.40	51-51.9	2.27	2.65
32-32.9	1.51	1.70	37-37.9	1.71	1.95	42-42.9	1.91	2.20	47-47.9	2.11	2.45	52 and above	2.31	2.70

Seminole Output at Tank Builders' Heels

By Lawrence E. Smith
N. P. N. Staff Writer

TULSA, Feb. 19

CRUDE oil may soon be moving from the growing Seminole field in Oklahoma in tank cars at lower than posted prices, due to overproduction there the pipe lines and steel storage are inadequate to handle for many companies.

One company with considerable experience in crude oil brokerage in other districts is understood to be planning installation of loading racks at Seminole. Its view is that, with the present outlook for further increase in production, there will be crude for anyone equipped to take it.

A representative of a Texas refiner is said to be in the field and offering to take up to 2000 barrels daily, regular price on gravity basis for oil delivered at loading rack. Thus, a producer dealing with this company would be making a price concession of about 12 cents, figuring the usual gathering charge. No acceptances have been reported of this offer.

The situation, however, is critical and there appears to be only one way of handling it, viz; a crude oil storage campaign on a scale far greater than anything seen in the Mid-Continent in several years.

Faced with a more complex situation now than last November when a partial shut-down and proration of runs was effected, Seminole operators met last week to see whether something could be done to ease the burden.

A COMMITTEE from their numbers suggested that Ray Collins, who served as "umpire" during the former shut-down, be employed to make a quick survey of the field, report on wells that could be stopped now without drilling in and on possibilities of cutting some wells off the gas lift, thus reducing production. The recommendation was adopted and it was expected that Mr. Collins would be ready to report to the committee about Feb. 21.

During the discussion of operators it was made clear that the purchasing companies will not pro-rate purchases, nor will they accept oil for storage on a rental basis, both suggestions being made in the meetings.

It is also fairly well settled that new pipe line construction will not be undertaken to move current production. Feeder lines from the district to trunk lines cannot be increased greatly because, with oil that is shipped from other older fields, trunk lines are now handling about their capacity. Storage of oil in older fields, where tankage is available, would allow more room for Seminole oil. In a general sense, however, it wouldn't matter where oil is stored—new tankage would be called for somewhere and the relief afforded at Seminole would throw the pressure on the same purchasing companies somewhere else.

Seminole district has hit a mark of close to 305,000 barrels a day and the peak, barring some form of restraint, seems to be some distance off. "Any figure you care to name," says one executive, "will be received with respect." Nobody knows a thing about it; everybody is merely wondering.

THE outlines of the Nine-Six pool, or Seminole proper, have not been established to the west and south, although it is believed that in the other directions it will not go much farther. What appears one day to be true is disproved the next. For example, one of the wells on the west side of the Nine-Six pool was completed Jan. 25 for about 300 barrels on the swab. It appeared to be near the edge in that direction. It was put on gas-lift last Thursday and responded with a flow of 205 barrels an hour.

Not much is happening in Searight, the pool to the north of Seminole, but Earlsboro and the Eight-Six, or Lima, field, to the west and south respectively of Seminole proper, are still in the making, each with two wells producing from deep pay. In Earlsboro, the two wells are a quarter-mile apart, while in Eight-Six they are about a mile and a half apart.

With these two wells in the embryonic stage and Seminole proper not limited, the assertion that any estimate will do as well as another is pertinent. This is to say nothing of the wells drilling in territory between the present pools, some of which may find pools. There is plenty to worry about, without considering such possibilities.

What operators may be able to do in restricting production is guesswork. Mr. Collins may make his recommendations and find little agreement with them. When the operators reached an agreement last November, they were pretty much in the same boat. All lacked storage and pipe lines. Now a number are handling their problems satisfactorily and appear to be able to keep ahead of production by building tankage. Others are on the end of a short rope.

If all compressor equipment in the district were to be cut off today production would drop at least 100,000 barrels daily. The writer has yet to find an operator who agrees that such a radical shut-down is probable. This form of production is the one best adapted to the Seminole type of field. Probably it means greater final recovery of oil from the sands; certainly it means quicker recovery and lower cost. The operator who is prepared now to store his production is not likely to favor abandonment of the gas lift method even temporarily, feeling that he runs the risk of cutting down his final recovery by so doing.

THE state authorities have not put in an appearance as yet. It is difficult to see where they would fit in. They have the authority, doubtless, to prevent physical waste of oil and within the past two weeks a small amount of oil has gone into earthen storage. But the corporation commission could not order a general curtailment of production on the ground of waste, for only a few companies have resorted to earthen storage.

Some point out that the place to start on present shut-down talk is in Earls-

(Continued on Page 28)

Oil in Storage, Tankage Built, Building and Proposed, in Seminole District, Feb. 15.

(Does not include oil in lease tanks)

Completed—55,000 Bbls.

Company	Location	No. Tanks	Stocks
Amerada	7- 9-6	4	36,955
Barnsdall	24- 9-6	2	84,160
Barnsdall	34- 9-6	1	.....
Carter	3- 9-6	2	60,647
Carter	34- 9-6	1	.....
Carter	35- 9-6	5	219,540
Mid-Continent	14- 9-6	3	.....
Mid-Continent	34-10-6	1	.....
Gulf	9- 9-6	1	.....
Gulf	35- 9-6	1	.....
I. T. I. O	24- 9-6	1	14,224
I. T. I. O	26- 9-6	2	.....
Magnolia	27- 8-5	5	.....
Oklahoma P. L.	35- 9-6	2	.....
Pure	26- 9-6	2	106,000
Pure	28- 9-6	5	110,872
Prairie	27- 9-6	3	160,500
Prairie	33-10-6	4	107,615
Sinclair	35- 9-6	1	.....
Searight	33-10-6	1	.....
		48	

Completed—80,000 Bbls.

Company	Location	No. Tanks	Stocks
Sinclair	3- 8-6	2	42,000
Slick	6- 8-7	1	21,747
Tidal	25- 9-6	3	36,000
		—	
Total in storage			1,000,260

Building—55,000 Bbls.

Barnsdall	11- 9-5	1
Barnsdall	34- 9-6	1
Carter	3- 9-6	1
Carter	34- 9-6	3
Pure	28- 9-6	4
I. T. I. O	24- 9-6	2
Slick	6- 8-7	1
		13

Building—80,000 Bbls.

Barnsdall	24- 9-6	2

Grading—55,000 Bbls.

Carter	34- 9-6	3
Empire	35- 9-6	1
Gypsy	10- 9-5	5
Prairie	27- 9-6	1
Prairie	33-10-6	4
Pure	28- 9-6	1
Sinclair	3- 8-6	..
Slick	6- 8-7	..
		15

Grading—80,000 Bbls.

Sinclair	3- 8-6	2
Slick	6- 8-7	2
		4

Proposed—55,000 Bbls.

Carter		5
Sinclair	3- 8-6	5
		10

Proposed—80,000 Bbls.

Sinclair	3- 8-6	1

Index to This Week's News

National Petroleum News

Production

Carter Cuts Mid-Continent Crude, Prairie Follows 17
Seminole Output on Tank Builders' Heels ..... *By Lawrence E. Smith* 17
Rumors Current Skelly Properties Are Sold 20
Four Oil Men Head A. I. M. E. 24
Closeup of New Chairman of Petroleum Division, A. I. M. E. 24
Factors Affecting Gas Lift Operation ..... *By Lester C. Uren* 27
New Control Features of Gas Lift Operation 29
Seminole Biggest Laboratory for Stimulated Production ..... *By A. F. Hinton* 32
Daily Average Crude Figures 38
Week's Completions 44-46
Well's Natural Pressure Put to Work in New Device ..... *By A. F. Hinton* 53
Our Industry, Facts and Personalities ..... *By Paul Wagner* 85

Refining & Natural Gasoline

Rate Cracking Plant on Gasoline Output ..... *By Paul Truesdell* 21
Refiners and Metallurgists Get Together on Corrosion ..... *By Paul Truesdell* 21
High Spots for Refiners From A. I. M. E. Meeting 23
Vapor Recovery System Cost $10,000—Runs Itself ..... *By J. C. Chatfield* 26
N. P. N. Weekly Western Refinery Figures 34
Advances in Natural Gasoline Manufacturing Methods ..... *By George P. Bunn* 57
Natural Gasoline Test Code Approved by Producers 68
Visiting Around the Refineries ..... *By Paul Truesdell* 77

Marketing

Substitution Talk Mostly Propaganda, Jobbers Say ..... *By Roger B. Stafford* 20
Jim Gilmore's Do's and Don't's on Service Station Operation 56
Issue Greater Than Fixing Margins ..... *By Warren C. Platt* 62
Dealers Enlisted in Search for Key to More Sales 64
Marines Have Situation Well in Hand ..... *By Ward K. Halbert* 73

Departments

New Equipment for Plant Improvement ... 83
Here and There 86
New Publications 88
New Oil Stations 93
New Patents 90
On The Lazy Bench 95

Market Section

Refinery Price Tables 99-101
Tank Wagon Price Tables 103
Complete Export Markets 104-105
Crude Oil Prices, All Fields 106
Refiners' and Compounders' Supplies 107
Oil Company Finance 109-110

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Tax Bill is Introduced In Illinois House

CHICAGO, Feb. 18.—Representative David Hunter of Rockford, Ill., on Feb. 16, introduced a bill in the lower house of the Illinois legislature, which if passed will place a tax of 2 cents a gallon on gasoline sold in the state, the tax collectable by the jobbers.

Representative Hunter and his followers, propose in this action to repeal a law now in force which taxes property values 25 cents per $100 for road upkeep. This is to be covered by the gasoline tax, as well as the greater expenditure for road building.

The Hunter bill would allow only 30 per cent of the gasoline tax revenue to be spent on the state roads. The remaining 70 per cent would be returned to the counties for road building, half in proportion to taxes collected in automobile license fees, and half in proportion to the county's state road mileage. It allows exemptions on gasoline used otherwise than in automobiles. Purchasers of gasoline for other purposes would pay the tax but would have it refunded upon affidavit.

THE day after the Hunter bill was introduced, a new gasoline tax bill was introduced in the Indiana legislature, lower house. It would raise the gasoline tax in Indiana from 3 to 5 cents a gallon. This bill calls for uniform registration fees for all automobiles, a nominal fee just sufficient to take care of the state's expenses incidental to registration.

The Indiana bill, except for the changed figures, is much like the law now in force. The state would deduct the cost of administering the law from the gross collections, appropriate three-fifths of the net to the state roads and distribute the remainder to counties and towns, under the present ratio. Proponents of the bill think the counties would get about 1¼ cents per gallon of the 5 cents.

Another Osage Auction To Come in March

TULSA, Feb. 19.—The Osage agency at Pawhuska having announced that a sale of leases will be held in March, unofficial information is to the effect that the date is either the 23rd or the 24th. It is also reported that 75,000 acres will be offered for sale, of which 6200 acres consists of cancelled leases or tracts put up at previous sales and passed without bids.

There will be 12 tracts in the vicinity of Burbank, including four in the south Burbank or Fairfax field. Probably the outstanding tract of the list is the SW¼ of 27-27-6, which is a north offset to the Kewanee Oil & Gas property. This property, comprising all of section 34, is producing about 12,000 barrels daily, or one-fourth the total production of the Burbank field at present.

Other tracts to be offered include: SW of 6-27-6, SE of 17-27-6, NE of 3-26-6, NE of 11-26-6, SW of 28-26-6, SE of 28-26-6, and SE of 29-26-6. In the South Burbank area, the following tracts are likely to be offered: SW of 11-25-6, SE of 11-25-6, NE of 14-25-6, NW of 14-25-6.

Rumors Again Current of Skelly Oil Sale

TULSA, Feb. 21.—Rumors again are current that the Skelly Oil Co. is about to be sold. This time rumor says that the Standard Oil Co. of New Jersey has bought controlling stock interest from W. G. Skelly and his associates.

Many rumors were current last year about the sale of the Skelly properties. It is stated the Standard of New Jersey once made an offer which was refused by the majority stockholders.

The Skelly Oil Co. has a 16,000-barrel skimming and cracking plant at El Dorado, Kan., and an extensive system of bulk and filling stations in the southwest. It is one of the most important manufacturers of natural gasoline in the Mid-Continent with an average production of around 140,000 gallons per day. The company has been aggressive as an oil producer since its organization in 1919.

Oklahoma Tax Increase Proposals Killed

TULSA, Feb. 19.—The principal revenue measures affecting the oil industry of Oklahoma have been disposed of satisfactorily to the industry. First, the bill to apply a state income tax law to corporations was killed in committee and during the past week the proposed increase in gross production tax from 3 to 5 per cent was brought out of committee and knocked in the head by the decisive vote of 64 to 37. Extended discussion before the revenue committee was marked by an effective presentation of the opinion of the oil producers, Secretary Harry H. Smith of the Mid-Continent Oil & Gas Association leading in the fight against the bill and a number of operators appearing to show that the oil industry already pays a disproportionate share of taxes.

(By Telegraph)

HOUSTON, Feb. 21.—The Railroad Commission of Texas is investigating charges of waste after drilling in of the A-2 well of the Simms-Atlantic partnership in the southeast corner of Sec. 39, University block 30, Crane county.

Basis of the charge is that pipe line and storage facilities were not provided for handling the well's flow and that production was turned into hastily scooped up earthen pits.

The well is reported drilled into the pay 60 feet before completion for 8000 barrels maximum daily production, as compared with the Eastland Collett diagonal offset, which made 1800 barrels daily at 15 feet in the pay.

Let People Vote on Gas Tax, Jobbers Say

Staff Special

CHICAGO, Feb. 18.—Illinois Petroleum Marketers Association went on record this week at its annual convention in Springfield against the proposed 2-cent gasoline tax, unless it is voted for by the people. This position was taken after the subject had been discussed thoroughly.

A second positive decision reached at the meeting was the opposition of the association to the proposed increase in freight rates on petroleum products from Group 3 into the middle western states. Charles S. Rosenthal, Apex Motor Fuel Co., Chicago, the retiring president of the Illinois association, explained that the proposed increase meant an additional cost to the jobber of about $16 a car. The membership backed him up in a protest already filed with the Interstate Commerce Commission by the association's officials.

The Illinois jobbers voted the adoption of a co-operative service emblem, in line with similar action taken by the oil jobbers of Indiana in Indianapolis last Dec. 10; by the North Dakota group in Fargo on Feb. 4, and by the Michigan jobbers in Detroit on Feb. 10. In all four states the emblem is the same with the exception of one word in the copy—the name of the state. The Indiana emblem was shown on page 41 of the Dec. 15 issue of National Petroleum News.

B. H. Taggart of Peoria, was elected president. Bert Taggart is of the Sweney Gasoline & Oil Co., and for several terms was secretary of the Illinois jobbers.

R. T. Barbour of the De Kalb Independent Oil Co., De Kalb, became vice president. G. A. Primm of Springfield continues as secretary. The new board of directors follows:

Charles S. Rosenthal; Guy R. Smith, Smith Oil & Refining Co., Rockford; Herbert Beach, Illinois Independent Oil Co., Lincoln; Russel Hanson, Solle Oil Co., Springfield; M. C. Hill, Sweney Gasoline & Oil Co., Peoria; J. D. Bardill, Merchants Oil Co., Highland; F. A. Muench, Diamond Kerosene Co., Carlinville; C. H. Armould, Armoulds Oil Co., Quincy; E. R. Kennedy, Kennedy Oils, Galesburg; William Breitweisser, New Era Oil Co., Belleville; E. J. Farr, Egyptian Trail Oil Co., Onargo, and W. T. Leverenz, Leverenz Oil Co., Danville.

W. O. Hudson is Injured In Auto Accident

NEW ORLEANS.—W. O. Hudson, president of the Marine Oil Co. of New Orleans and veteran oil marketer of the south, was severely injured in an automobile accident while driving from Fort Worth to New Orleans recently. The accident occurred near Alexandria, La.

Mrs. Hudson also was badly hurt as were Mr. Hudson's brother and sister-in-law. They were taken to a hospital.

Engineers Cutting Refining Costs

By Paul Truesdell
N. P. N. Staff Writer

Cracking Plant Should Be Rated On Gasoline Output

NEW YORK, Feb. 17

REFINERS undoubtedly will continue to turn out from their cracking stills motor fuel that is increasingly better from an anti-knock standpoint. Hand-in-hand with the improvement in design and operating methods of pressure, liquid-phase, cracking equipment, vapor-phase cracking is being developed.

Vapor-phase cracking is likely to find its greatest use in making anti-knock material of high concentration that can be blended with other gasoline to make a high value, anti-knock fuel, rather than as a means of producing in itself a finished fuel for the market.

These were some of the thoughts brought out by Benjamin T. Brooks, consulting chemist of New York, at the A. I. M. E. meeting. He stated that the production of better fuels by pressure cracking is likely to come from the use of higher temperatures and pressures, citing a temperature of 950 F. and a pressure of 1000 pounds as likely to be used.

AS an example of the development of vapor phase cracking, Dr. Brooks stated it is understood that one of the anti-knock gasolines that is now finding large sale over a widespread marketing territory is made by the aluminum chloride process. He also said that considerable possibilities lie in the use of the extract taken from kerosene by the sulfur dioxide process. This material has high anti-knock value and the addition of a relatively small quantity to ordinary gasoline improves its anti-knock value.

Following Dr. Brook's paper, the chairman called for a free discussion of the cracking situation. During this discussion no notes were taken, it being understood that those present were at liberty to give their thoughts on the subject without putting them on record.

There was one outstanding question in the minds of those taking part in the discussion, "How Shall We Rate a Cracking Plant?" This question seemed to divide itself into two parts, first, shall a cracking plant be rated on the basis of the throughput per day of charging stock, or on its daily output of gasoline and, second, what is gasoline, for the purpose of figuring the performance of a cracking plant.

IT was pointed out that it is possible on paper to show almost any kind of a yield in selling a customer a cracking plant and that, when the plant is installed and in operation, the refiner is often disappointed in the results.

This condition arises not necessarily from any intention of the seller of the cracking plant to deceive the refiner, but more often from the fact that the seller and the refiner do not always start from the same basis in their figuring and do not mean the same thing when they discuss throughput and yield. This condition could be cured, it was thought, if the refining industry should adopt a standard method of rating cracking plants. The preferred plan suggested was to take the daily production of gasoline as the measure of the cracking plant's earning power.

This again would make necessary a definition of gasoline as applied to a cracking plant, if confusion in terms and subsequent disappointment is to be avoided. If U. S. Mo-

(Continued on Page 22)

Refiners and Steel Makers Join To Combat Corrosion

NEW YORK, Feb. 17

THE symposium on corrosion, from the standpoint of the refiner was the most important event on the program of the three-day meeting of the American Institute of Mining & Metallurgical Engineers which ended here today.

Corrosion of distilling and fractionating equipment is no new thing to refiners, of course. However, until recently, it was regarded as more or less in the class with floods and earthquakes, something about which very little if anything could be done. The past two years, the results of corrosion have become more and more severe, due to the rapid increase in cracking under which conditions the most serious corrosion occurs. Also, the ravages wrought by corrosive compounds on metal equipment during distillation is better recognized than ever before.

Refinery corrosion was discussed by refiners who know its damages to their sorrow, and also by outstanding men in the metallurgical field, showing the point to which they have developed corrosion resisting steels.

The importance of the corrosion problem in all branches of the oil industry was outlined in a paper prepared by Frank N. Speller of the National Tube Co., who was to have presided over the symposium but was unable to be present. "Corrosion in the Presence of Oily Substances," was a paper prepared by Ulick R. Evans, Kings College, Cambridge, and read by Sidney Kirkpatrick of Chemical and Metallurgical Engineering, in the absence of the author.

A. E. Wood, Mississippi College, Clinton, Miss., introduced by the chairman as the man who has carried investigation of sulfur in petroleum farther than any man in the United States, read a paper on that subject. Discussion was general and among those taking part was Dr. L. Edeleanu, inventor of the sulfur dioxide process of treating kerosene. He stated he had found that sulfur dioxide will remove all the sulfur compounds from petroleum except hydrogen sulfide and the mercaptans.

Dr. John A. Mathews, vice-president of the Crucible Steel Co. of America read a paper in which he described, from a construction and service standpoint as well as from a corrosion resisting standpoint, properties of the alloy steels that are now available.

WHILE hydrogen sulfide in cracking operations is probably the most serious corrosion factor and the most difficult to combat, corrosion by hydrochloric acid formed from the salt water in the crude in crude distillation, is also a troublesome problem. Walter Samans, chief engineer of the Atlantic Refining Co. read a paper prepared by himself and D. E. Pierce of the Atlantic on this subject and gave a description of the ammonia feeding system which is used to fight it by his company.

The papers and discussions at the symposium emphasized two things:

1—That destruction of equipment through attack by corrosive compounds present or formed during distillation and fractionation is one of the most serious problems of the refiner.

2—That the metallurgists have developed and are ready

(Continued on Page 23)

Cracking Plant Should Be Rated on Gasoline Output

(Continued from page 21)

tor gasoline is taken as the standard it should be so specified. If a heavy naphtha which must be rerun to produce a large yield of gasoline is meant, that should be specified, it was pointed out.

ALONG with consideration of cracking plants and their methods of operation came the subject of treating pressure gasoline, with its accompanying and related subject, how much sulfur may safely be left in gasoline from the standpoint of the automobile engine.

Dr. Egloff of the Universal Oil Products Co. read a paper in which he set forth the high cost of treating pressure gasoline to meet sulfur specifications, both from a processing and from a volumetric loss standpoint. He repeated what he has said frequently that the tolerance of sulfur in gasoline specifications could safely be widened considerably without any damage to the automobile engine resulting.

He brought forward the same point that was emphasized in the corrosion symposium, namely, that, at present, a higher percentage than ever before of the crude being produced and likely to be produced in the near future is high sulfur crude and that, if the sulfur content requirement is held to its present limit of .1 per cent the removal of the excess is going to mean an increasingly heavy burden on the refiner.

He found several supporters for his position. Several men said that they had never, in a long experience, heard of an automobile engine being seriously damaged by sulfur in the gasoline and one man said that his company had for years marketed a gasoline containing .8 per cent of sulfur and had never had a complaint.

THE advertising campaign being put on by the Standard Oil Co. of New York in the newspapers, in which is shown a vacuum float, eaten up by corrosion, was discounted by the refiners and technologists present at the meeting, although these ads did not come up directly in the discussion. The majority of the men present, while not disputing that such corrosion could be caused by high sulfur gasoline, did dispute the likelihood that it would occur from any gasoline sold in any volume on the market.

Some of those taking part in the discussion, however, expressed the belief that the sulfur limit of gasoline cannot be safely widened.

Contact Filtering vs. Percolation

WALTER MILLER, Marland Refining Co., newly elected vice-chairman of the petroleum division of the A. I. M. E. in charge of the refining branch, read a paper on contact filtering prepared by Dr. E. R. Lederer of the Texas Pacific Coal & Oil Co., who was not present.

This paper described in a general way the contact process as it is operated at the plant of the T & P at Fort Worth. This filtering plant was described some months ago in National Petroleum News. The author brought out that the cost of building a contact filtering plant is considerably less than the cost of a percolating plant of similar capacity and implied the belief that contact filtering would rapidly become general in the industry.

Mr. Miller, in his discussion of Dr. Lederer's paper, differed considerably with the author. He stated that, while the initial cost of a contact plant is below that of a percolating plant, it is a question whether the operating cost is not higher, particularly in view of the fact that, under present conditions, once-used fine clay cannot be revived.

There was considerable discussion as to the relative merits of the two systems. H. S. Bell, refinery engineer, New York, told briefly of a contact plant operating at Bradford, Pa., on Pennsylvania crude. In this system, which compromises a circulating pipe still and two shell stills the fullers earth of very fine mesh is fed continuously into the topped crude.

The concensus of opinion seems to be that general adoption of contact filtering to the exclusion of percolating method awaits the development of some method of reclaiming the used clay. Some of the speakers thought that the recent appearance of a clay roasting furnace that makes possible the use of the earth in percolating filters from 25 to 30 times has struck a blow at the rapid development of the contact method.

General Refinery Progress

CHARLES H. OSMOND, in a paper, reviewed the progress of the past few years in the refining industry. He stated that during 1926 progress slowed up in basic changes in the industry, while those changes were assimilated, or adapted to actual manufacturing processes.

In distillation, (apart from cracking) which he said is the major operation in refining, Mr. Osmond stated the chief improvements have been the more general adoption of pipe stills, about 10 percent of old shell equipment having been replaced by these newer units, heat exchangers.

Cracking installations have increased rapidly during 1926, the output of cracked gasoline having risen from an average of 189,000 barrels a day in 1925 to 249,000 barrels in 1926, Mr. Osmond said. He added that the present tendency in cracking installation is to put in units of larger capacity. Whereas at the end of 1924, the average cracking unit under construction had a capacity of 300 barrels of gasoline a day, those under construction or planned at the end of 1926 averaged between 1000 and 1500 barrels a day gasoline capacity. Judging by results, he said, the cracking art is progressing faster than any other department of the refining industry, due to the constant study of the subject by petroleum engineers.

During 1926, he said, the usual number of new processes had been announced, but "to date none of these stand out as guiding stars for the future refiner."

Fractional Condensation

OUTSIDE of cracking, Mr. Osmond said, nothing played a more important part in the refinery improvement program than the discarding of inefficient fractionating equipment, towers, dephlegmators and so on and substitution of equipment in line with the latest discoveries in the art. In Oklahoma and Texas refineries, the speaker estimated, rerunning was reduced 75 per cent due to the installation of towers that make close cuts and produce finished products direct from the crude.

Decolorization and Purification Light Oils

THE practice of treating light oils, particularly cracked distillates has shown the least progress during the year of any branch of the refining art, the speaker stated. This was not due to lack of study but to the ever varying conditions forced upon the refiner by varying types of crude. The closed system continuous treatment of cracked gasoline with sulfuric acid is more firmly intrenched than ever, he said, and the only system that appears to offer it any competition is the Gray fullers earth system of treating in the vapor phase.

Lubricating Oils

CONCERNING treatment of lubricating oils, Mr. Osmond said: "There has been a very rapid adoption of the fine clay contact process during 1926. This change is based on lower manufacturing cost and greater recovery. Modifications, based on the type of crude, have been made, so that it seems as if this method under any crude conditions shows the lowest manufacturing costs of any of the commercial methods. Capital expenditure for this method of processing is low as compared with older methods."

The speaker went on to say that the use of mechanical dewaxing of lubricating distillates from paraffin base oils has increased at such a rapid rate during 1926 that at present about 11 per cent of the lubricating oils produced in the country are manufactured in this manner.

General Observations

MR. OSMOND summed up progress made in the refinery industry during 1926 as follows:

"From the above record of rapid and important advances in manufacturing it is evident that the work of the refinery engineer began to show cumulative results in 1926 and clearly demonstrates the importance of the engineer in the future of an industry that is going to depend more and more for its profits on closely calculated operating costs and related savings."

Luis de Florez, consulting engineer, read a paper on automatic control of still temperature which he believes a necessity of the future. The de Florez method of automatic control was described recently in National Petroleum News.

Refiners and Steel Makers to Combat Corrosion

(Continued from page 22)

to furnish metal alloys that have not only high resistance to corrosion but also have the requisite tensile strength and other qualities that make them adaptable to use under high temperature and pressure operation conditions.

This being the case it seems that the best thing that could happen would be for the representatives of these two sciences to get together, thoroughly test out the materials already available, and work together until they get materials thoroughly suitable for the purpose. Already corrosion resisting alloy steel is available in tubes, plates, sheets and castings, the refiners are told, although some difficulty is experienced in machining castings made from some of the alloy steels.

Right now the men who need corrosion resisting materials and the men who are ready to furnish them, are pretty far apart. And they seem to be regarding each other with more or less suspicion. The refiners, as brought out in this session, feel that they cannot afford to pay four times the cost of ordinary steel for their refining equipment, while the alloy manufacturers state that they are not making any money on the non-corrosive materials they are selling, although the price is high because of the large sums they have spent in research and development. They intimate that large volume orders are the only means by which the cost of the new materials can be brought down. It is likely that some refining companies are making large scale tests now but so far as we know no results have been reported that show the actual savings possible.

As showing how lack of cooperation between refiners and equipment manufacturers can cause trouble to both, Hamilton Garnsey, Jr., Goulds Pumps, Inc., cited that a pump had been ordered from his company by a refiner for pumping gasoline. It was not stated to the manufacturer that the gasoline contained water and sulfuric acid, and corrosion set in and the pump was shortly ruined. Had the refiner stated the nature of the stuff the pump was to handle it would have been a simple matter to furnish a pump with a corrosion resisting impeller, Mr. Garnsey said.

H. F. Perkins of the Gulf Refining Co. was active in the discussion. Mr. Perkins read a paper at the December meeting of the American Petroleum Institute in Tulsa in which he told of his company's corrosion problems and how they are being fought at the Port Arthur refinery, giving the company's experience with a number of metals in different services. This paper was published in full in National Petroleum News at that time.

IT seems likely that, within a short time, tests will be available to the industry which will serve to show conclusively whether the price of the special steels is higher than the savings they bring. President E. W. Clark of the American Petroleum Institute has just appointed a committee made up of outstanding men in the producing, pipe line and refining branches of the oil industry, under the chairmanship of Frank N. Speller of the National Tube Co. who is one of the leading authorities on corrosion and on alloy steels to resist it. Members of the committee, besides the chairman, are: E. P. Bly, Standard Oil Co. of California; W. G. Heltzel, Sinclair Oil & Gas Co.; F. Ray McGraw, Standard Pipe Line Co. of Louisiana; H. F. Perkins, Gulf Refining Co.; Ralph J. Reed, Union Oil Co. of California; C. R. Weidner, Prairie Pipe Line Co.; C. C. Lakin, Standard Oil Co. of Indiana.

THIS committee is expected, according to President Clark's statement, to recommend to the Institute what its policy should be in relation to corrosion work and to suggest the scope and character of investigation necessary to carry on this work successfully. President Clark's statement goes on to say:

"The committee has been asked to recommend an appropriate form of organization and the personnel of a general committee on corrosion. In order to make these recommendations it will be necessary for the temporary committee to study and classify the important corrosion problems and also to ascertain what steps have been taken toward prevention of corrosion by the various branches of the petroleum industry or others." The petroleum division of the A. I. M. E. pledged its cooperation to this committee.

One fact that makes finding a remedy for corrosion more necessary than ever before was brought out first by L. G. E. Bignell of the Parkersburg Rig & Reel Co. in a paper read at the Institute meeting in Tulsa last December. This is that, of the new crude oil supplies in sight, a large majority come from limestone formations and have a higher content of sulfur than has been ordinarily found in crude hitherto. In general it is believed that the higher the sulfur content the more severe the corrosion problem.

CHARLES H. OSMOND, of Crandall & Osmond, consulting engineers, New York, chairman of the refinery branch of the petroleum division of the A. I. M. E. presided at the corrosion symposium. He quoted one of the production experts at the meeting to the effect that, of the new crude being produced and in sight in the new fields, around 62 per cent has a high sulfur content.

Gustav Egloff and Jacque C. Morrell of the Universal Oil Products Co., in a paper discussed "Corrosion of Pressure Still Equipment." The authors pointed out that the conquering of corrosion in pressure stills is dictated both by the economic loss and the fire hazard. They pointed out that, within a short time, the situation will become acute on the Pacific Coast, where, it was predicted, 100,000 barrrels a day of high sulfur crude will be charged through cracking stills.

They estimated that, on the basis of a sulfur content of the charging stock of two per cent of the oil, the 100,000 barrels daily throughput of the cracking stills will contain 650,000 pounds of sulfur.

They spoke of the efforts that have been made and the money spent to find an economical means of desulfurizing crude oil, without success so far. It was

High Spots for Refiners From A. I. M. E. Meeting

Corrosion of refinery equipment is an increasingly serious problem due to high sulfur content of new crudes but steel industry has alloys to reduce its effects. Refiners and steel makers far apart on price.

* * *

Refiners will make better anti-knock fuels from their cracking stills, probably using pressure around 1000 pounds and temperatures around 950 F.

* * *

Vapor phase cracking is advancing and promises to become important factor.

* * *

1926 was a year of adaptation to refinery processes of discoveries of past few years. Most important improvements were in cracking equipment, fractionating equipment and in combustion and heat economy.

* * *

Contact filtering made big gains in 1926, but improvements in coarse clay roasting equipment may give it a setback.

* * *

Industry needs a universal yardstick by which to rate the earning power of a cracking plant.

* * *

Automatic control of refinery equipment is a great need of the industry.

stated in the paper that the sulfur content of the charging stock to a cracking still is not always an index to the corrosive action that will result from distillation and fractionation of the oil. In support of this it was stated that Panhandle crude, containing 0.6 per cent shows very severe corrosion, while Smackover crude, which contains 2.8 per cent sulfur shows very little. It is important to bear in mind, the authors stated, that the content of sulfur is not always a safe indication of the corrosive action of the oil.

Investigation was suggested to determine the influence upon corrosion of oxygenated compounds such as naphthenic acids in oil undergoing cracking and their influence in the possible formation of oxidized sulfur compounds and organic acid bodies. There is also the possibility, it was said, of the formation of oxidized nitrogen compounds, but so far there is no evidence as to the presence of nitrous acid or the corresponding oxides. As showing the resistance of various metals to corrosion, the author gave the following statement:

"In a test covering a period of approximately 20 days while cracking 17,000 barrels of California oil, containing one per cent sulphur, at a temperature of 860° F., the following metals suspended in the vapor zone of the reaction chamber showed a loss in weight as indicated in the table:

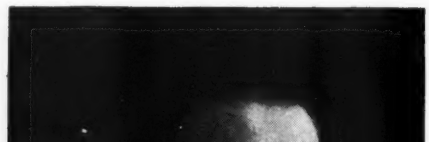
Metal Sample	Loss Weight Grs. Per Sq. In. Surface Exposed
Aluminum	0.004
Duraloy	0.010
Enduro	0.010
Ascoloy	0.046
Rezistall No. 4	0.064
Rezistall No. 8	0.077
Atha No. 2600	0.175
Armco Iron	1.11
Steel	1.19
Copper Bearing Steel	1.65
Calorizing "C"	2.39
Monel Metal	3.85
Copper	Entirely reacted upon

Going on to describe the corrosion in pressure still equipment, the authors stated:

The corrosion of pressure still equipment takes place principally in the heating tubes, return bends, plugs, pipe connections in hot oil pumps, hot oil pumps and pyrometer wells in what is primarily the liquid zone, and in the vapor lines, reaction chamber, dephlegmator, and pyrometer wells in the liquid-vapor and vapor zones.

THE heating tubes used in pressure still equipment are usually fabricated from mild steel of seamless type. With cracking stocks showing high rates of corrosion the steel tubes corrode relatively rapidly calling for frequent replacements. The life of mild steel tubes subjected to the highest temperature conditions of cracking is about two months with a cracking stock containing one per cent sulphur. Experiments show that an approximately 15 per cent chrome iron tube will cut down the corrosion rate to a remarkable extent. Chrome iron tubes which have been in service for a period of seven months under similar cracking conditions to the mild steel tubes, show no marked corrosion up to the present, and are still in service.

New A. I. M. E. Chairman is Mining Engineer and Oil Man



JOHN M. LOVEJOY

Vice president and general manager, Amerada Petroleum Corp., Tulsa., who was recently elected Chairman of the Petroleum Division, American Institute of Mining and Metallurgical Engineers

TULSA, Feb. 15

JOHN M. LOVEJOY, new chairman of the Petroleum Division, American Institute of Mining and Metallurgical Engineers, is a mining engineer as well as a petroleum executive. He is vice-president and general manager of the Amerada Petroleum Corp. Under his direction that company's production has moved upward from zero in 1919 to a gross figure of some 47,000 barrels daily at present.

Mr. Lovejoy graduated in 1911 from the School of Mines, Columbia University. In addition to other college activities, he pulled a mean oar, serving as captain of the Freshman crew. With his diploma clutched firmly, Mr. Lovejoy proceeded to Chile to show the Guggenheims how a really efficient mining engineer worked. He showed them for two and a half years, returning to spend the ensuing year in the Gilpin, Colo., mining district.

In 1914 he went to China as geologist for the Standard Oil Co. of New York. Then he was employed as geologist by the Texas Company, working for a while in Wyoming, later going to Electra, Tex. There he decided to round out his oil experience by working as a roustabout, and was doing lease work when the war started.

Mr. Lovejoy went to France, in February 1918, as first lieutenant. He was attached to the French artillery school at Saumur, then to the 55th Field Artillery brigade, where he was promoted to captain. He commanded a battery in the St. Mihiel and Argonne offensives.

In 1919, after leaving the Service, Mr. Lovejoy was sent to Tulsa by E. De Golyer, as "agent" for the newly-formed Amerada Petroleum Corp. He has been in charge of the company's activities in the Mid-Continent since.

Mr. Lovejoy is married, his wife having been Miss Leslie Mackintosh of New York city, and has two children. Always interested in the affairs of the A. I. M. E., he served as chairman of the Mid-Continent section and as member of the Executive committee. He is president of the University Club and is a member, among other organizations, of the Tulsa club and the Tulsa Country club.

Four Oil Men Are Made Officers of A. M. I. E.

NEW YORK, Feb. 19

THE oil industry is strongly represented in the list of new officers of the American Institute of Mining & Metallurgical Engineers, elected at the annual meeting which ended here today. The president and three vice presidents of the association are oil men. These officers are:

E. L. De Golyer, president Amerada Petroleum Co., president.

George Otis Smith, U. S. Geological Survey, first vice president.

B. O. Mahaffy, president the Silurian Oil Co., vice president.

F. Julius Fohs, consulting geologist, vice president.

The officers of the Petroleum Division were elected as follows:

John M. Lovejoy, Amerada Petroleum Co., chairman.

Walter Miller, Marland Refining Co., vice chairman for refinery engineering.

T. G. Delbridge, Atlantic Refining Co., associate vice chairman for refinery engineering.

Charles W. Stratford, Associated Oil Co., associate vice chairman for refinery engineering.

Herschel G. Smith, Gulf Refining Co., associate vice chairman for refinery engineering.

Joseph B. Umpleby, Goldelline Oil Corp., vice chairman for production engineering.

E. O. Bennett, Marland Refining Co., associate vice chairman for production engineering.

A. C. Rubel, Associated Oil Co., associate vice chairman for production engineering.

W. E. Wrather, consulting geologist, vice chairman for production.

Joseph Jensen, Associated Oil Co., associate vice chairman for production.

F. K. Haskell, Empire Pipe Line Co., vice chairman for transportation engineering.

Joseph E. Pogue, consulting geologist, vice chairman for economics.

Russell McFarland, Twin State Oil Co., secretary.

Substitution Talk Largely Propaganda, Pump Maker Tells Ohio Jobbers

COLUMBUS, O., Feb. 18.

SUBSTITUTION is the result of ignorance and is not done intentionally by intelligent oil marketers, C. C. Fredericks, president, St. Louis Pump & Equipment Co., told members of the Ohio Petroleum Marketers' Association at their annual convention here. He branded much of the talk of substitution as propaganda but warned that its practice meant business death.

Mr. Fredericks' talk was one on a two-day program that attracted about 300 men and more than 50 women to Columbus. Other talks were by Col. Theodore A. Peck, lubricating engineer, National Petroleum Marketers' Association, Chicago; T. A. Boyd, General Motors Research Laboratories, Detroit, and Dr. C. B. Forward, president, Oil Refining & Development Co., Urbana, O. There was an exhibit of 30 displays.

The title of Mr. Fredericks' talk was "Merchandising Gas and Oil, from the Viewpoint of a Motorist." The subject of substitution arose when he attacked a bill in the Ohio legislature which, if passed, would require the posting of brand names of motor oils on dispensers or tank truck outlets or the words, "No Brand," in case of unbranded oils.

The Ohio bill was propaganda, Mr. Fredericks declared. He displayed a pink newspaper clipping about the introduction of the bill and a story about the "terrible evils" of substitution.

"This clipping is an example of the worst soviet propaganda ever put across in this country," he said.

THE automobile driver who uses ordinary sense in buying gasoline and oil will not be deceived by "gyp" dealers, Mr. Fredericks said. In driving 25,000 miles in 19 states in 1926 he said he did not believe he bought one gallon of bootleg gasoline or oil.

"The intelligent marketer is not substituting," he asseverated. "The man that expects to stay in business knows full well he can't substitute inferior goods for good goods, poor oils for good oils, and stay in business. If you teach the present substitutor that he must follow good business principles, he won't substitute or he won't stay in business."

Mr. Fredericks urged upon the marketers the necessity for knowing their business fully, for knowing its fundamentals, its ideals and possibilities. A change in marketing is sweeping the country, he said, and the oil man that would keep pace with the change should know his business now. By knowing his business was meant, he explained, knowledge of it by the oil man's organization, particularly the service station salesman.

"Half of the service station men don't know what you mean when you ask for a 'lubricant' for your car," he declared in telling of his visits to about 1000 retail stations or pumps last year. He said talks with perhaps 3000 motorists on the road, and even in tourist camps, revealed the same experiences.

Motorists, he said, were not concerned so much about the price of gasoline and oil so long as they felt they were getting full value for their dollar. He urged the marketers to tear off the veil of mystery from around the oil industry and let the motorist know that what he buys is car lubrication and car propulsion.

He said oil marketers worried too much about the market and not enough about merchandising.

OIL marketers should get over to automobile owners the truth that lubricating oil is life insurance for the car, Col. Peck said. There are in service today locomotives, stationary, marine and other engines that are 10 to 50 years old but the automobile that was new 10 years ago is in the junk pile today, he cited. In the last six years 7,000,000 automobiles conservatively valued at $3,500,000,000 were junked for want of intelligent care and proper lubrication, he declared.

"The man who just sells lubricating oil is a failure; the man that sells lubrication is on the road to success, and the man that sells scientific lubrication is a success," Col. Peck asserted. "When you wear out oil at 15 cents a pound you are saving parts that cost $2 to $12 a pound in an automobile. Without lubricating oil an automobile engine will destroy itself in less than 3 minutes."

A little psychology might well be applied to the selling of motor oils, Col. Peck said. He told of how a service station salesman made friends and customers by carefully looking up the proper grade of oil for the model of car of each customer. This act gave the customer confidence that he was getting proper lubrication, Col. Peck said.

"Look up on the chart the proper grade of oil even if you fully know what grade the car should have," he advised.

He gave three essential specifications for motor oil: 1, It must be pure, containing nothing that will foul the motor; 2, It must possess stamina and not break down under normal working conditions, and 3, It must maintain its body, its viscosity.

"No oil is better than the man that fires the still," he answered a question about the relative merits of oils from different base crudes, adding that either paraffin or naphthene base oils will properly lubricate an automobile engine.

Col. Peck said he believed there was a trend toward lighter motor oils now that more volatile gasolines entailing less dilution, were being used. He said he opposed use of prediluted motor oils, saying, "As long as crankcases can hold more fluid there will be more dilution."

Dr. Forward outlined the elements of refining gasoline in his talk on "Distillation and Cracking Processes." He then explained his own cracking process which he has worked on for 20 years.

In the Forward process the cracking is done by steam in a series of heat exchangers. He said he obtained a 45° gravity pressure distillate from a 38° gravity Pennsylvania gas oil charged to the exchangers. From the distillate he obtained 65 to 70 per cent gasoline with 95° initial boiling point and 450° end point which he said had high anti-knock value.

William F. Burke, Kentucky Independent Oil Co., Covington, Ky., was reelected president. Other officers elected are: J. L. Marsh, Vahey Oil Co., Youngstown, first vice-president; R. E. Gerkins, Gerkins Oil Co., Dayton, second vice-president; R. R. Hart, Knox Oil Co., Mt. Vernon, third vice-president; and R. W. Palmer, Accurate Measure Oil Co., Columbus, treasurer. W. A. Milne, the secretary, is appointed by the directors.

DIRECTORS elected for three years are: H. J. Siemer, Merchants Oil Co., Cincinnati; R. K. Shoolroy, Arrow Oil Co., Wooster; S. O. Rothfus, Empire Petroleum Co., Toledo, and W. G. Hanson, Martins Ferry.

It was announced that the Knapp bill providing for the posting of the gravity specification at all gasoline pumps in Ohio had been killed.

Exhibitors were: McSavaney Co., Springfield; Eco Sales Co., Cleveland; S. F. Bowser & Co., Fort Wayne, Ind.; Pittsburgh Gasoline Pump Co., Pittsburgh; United States Pump Corp., Cincinnati; Deepwater Oil Refineries, Inc., Houston; Correct Measure Co., Rochester, Pa.; Tokheim Oil Tank & Pump Co., Fort Wayne, Ind.; Dayton Pump & Mfg. Co., Dayton; Erie Service Station Equipment Co., Erie, Pa.; Guarantee Liquid Measure Co., Rochester, Pa.; American Oil Pump & Tank Co., Cincinnati; Amco Sales Corp., Chicago; Sharpsville Boiler Works, Sharpsville, Pa.; Auto Compressor Co., Wilmington, O.; Air Scale Co., Toledo; Shotwell Pump Co., Indianapolis; Sterling Oil Co., St. Marys, W. Va.; Martin & Schwartz, Buffalo; Davis Welding & Mfg. Co., Cincinnati; National Recording Pump Co., Dayton; Oil Kraft, Inc., Cincinnati; Raymond Garage Equipment Co., Adrian, Mich.; Pennsylvania Pump Co., Pittsburgh; Quaker State Refining Co., Oil City, Pa.; Bennett Pumps Corp., Muskegon, Mich.; Novelty Advertising Co., Coshocton, O.; The White Co., Cleveland; Rand McNally & Co., Chicago, and Niles Steel Products Co., Niles, O.

Complete Gasoline Recovery System Cost $10,000—Runs Itself

By J. C. Chatfield
N. P. N. Staff Writer

Vapor Recovery System of the Panhandle Refining Co., Wichita Falls, Tex. N. P. N. Staff Photo

TULSA, Feb. 21

A VAPOR recovery system is in use at the Panhandle Refining Co. plant at Wichita Falls which cost less than $10,000 to install and which does not require the employment of even one extra man to operate. The system is an example of how a small refinery can add one of the refinements of larger plants at small cost and keep losses down to a minimum.

The Panhandle vapor recovery system consists of gathering lines from tanks and receiving house, a steam engine operating a compressor, two steam pumps for circulation of the absorbent medium, one absorber and a gas cooler. The accompanying photograph shows the absorber and small condenser box used as a gas cooler beside the small pump house which shelters all moving machinery used in the process.

THE compressor used at the plant is a Nash Hytor, a centrifugal or blower type of vapor pump. It pulls a vacuum at the intake of 1½ inches of water and discharges gas to the absorber under a pressure of about 10 pounds per square inch.

A stream of water is injected into the compressor with the gas. The rotary pump sprays this water through the gas and serves the purpose of scrubbing out a large part of the sulfur. A separator is provided to eliminate the water from the vapors. The water is automatically trapped off from the bottom and goes to the sewer.

Compressed gas passes through a series of coils immersed in water in the small condenser box shown at the rear of the absorber in the photograph. Any gasoline condensed in this cooler is trapped out to an accumulator tank and pumped to storage.

THE absorber is a 4 by 40 foot tower packed with wood grids, over which naphtha is pumped counter current to the rising gas. The naphtha used as an absorbent oil is pumped direct to the tower from a refinery working tank and is returned from the bottom of the absorber to the same tank. By using naphtha it is unnecessary to distill off the gasoline and recondense it for blending.

Generally speaking, the Panhandle Refining Co., produces a large quantity of 64-66 gasoline for the export trade. This cut is the first to be made direct from crude. The next cut is a 53 gravity naphtha with an end point of 420 degrees F. It is this product which is pumped over the absorber.

Average production of the plant is from 12,000 to 14,000 gallons per day of this 53 gravity product. Gasoline vapors collected around the plant and absorbed in the naphtha normally raise its gravity about 2 degrees. It is thus possible to bring the product up to full 58-60 U. S. Motor specifications with a small amount of natural gasoline or ship the product direct as market conditions may dictate.

Due to leakage of lines and tanks the vapor reaching the recovery plant contains from 60 to 75 per cent air. Average tests of the air-gas mixture show a gasoline content of 4.1 gallons of gasoline per 1000 cubic feet. Both the volume of gas collected and the gasoline content, of course, varies with the season of the year and temperature of the atmosphere.

Vapor gathering lines are connected with all run-down tanks, gasoline storage tanks, crude tanks and the receiving house. The fact that a vacuum of only 1½ inches of water is pulled at the compressor intake makes it unnecessary to install gas regulators in lines to storage tanks. The vacuum is only enough to overcome inertia of vapor in the gathering lines and keep it moving toward the compressor. It is not sufficient to pull in the roof of a tank under any circumstances.

F. T. C. Gasoline Report Ready March 4

By Special Correspondent

WASHINGTON, Feb. 17.—The Federal Trade Commission expects to submit the report of its gasoline investigation, ordered at the last session by the resolution of Senator Trammell of Florida, before the end of this session, March 4.

It will be made by the same men who made the report two years ago. Dr. Walker, the economist, whose peculiar accounting methods have attracted the attention of the oil industry, will be the real author.

While the commission is composed of a majority that is called conservative, its working staff is generally the same as it was two years ago.

Inasmuch as the report two years ago treated the jobbing margin as profit, the chances are that the same method will be followed this time and no effort made to find out what the profit really is for the marketers.

The commission is without power to require answers which would disclose profits. The obvious purpose of the resolution directing the inquiry was political.

At the time this was written the report had not been put into the hands of the commissioners. The work has been reported to be in such shape as to enable the commission to send the report to the senate not later than the morning of March 4.

Cities Service Salesmen Meet

TULSA, Feb. 19.—Salesmen of the Oklahoma division of the Cities Service Oil Co. met at the Mayo hotel here on Feb. 17 and 18 for a conference on sales conditions in this area. Hugo Hoevel, manager of the Oklahoma division, was chairman of the meeting.

Factors Affecting Flow of Oil in Ground Discussed by Engineers

By Lester C. Uren
Professor of Petroleum Engineering, University of California

NEW YORK, Feb. 17

THE American Institute of Mining & Metallurgical Engineers has nothing in its title to suggest it is the foremost professional society in the world devoted to the engineering and economic aspects of petroleum production, but this is true nevertheless. It represents the interests of engineers engaged in the oil producing industry, and comprises in its membership a greater body of engineers engaged in the oil-producing industry than any other organization.

The 1927 meeting of the institute, in New York, Feb. 14-17 inclusive, was notable both from the large number of engineers in attendance and for the variety and general excellence of the papers presented. Upwards of 60 technical papers and economic reviews were scheduled on the program of the several petroleum sessions, in addition to the less formal discussion and committee reports that received attention at round-table conferences, one on petroleum research and the other on petroleum engineering education.

Probably the most favorably received paper of the production engineering symposium, was that by E. O. Bennett and K. C. Sclater, entitled, "Some New Aspects of the Gas Lift." The paper republished in part in this issue of National Petroleum News, is descriptive of recent development and practice in the use of the gas lift by the Marland Oil Co. in the Panhandle field of Texas.

IN discussing this paper, A. W. Ambrose, of the Empire companies, gave data on the operation of the gas lift in the Seminole field. Both air and gas are being used in the operation of lifts in this field, and it is estimated that over 100,000 barrels of the present daily production of the field, is directly due to their use. Accurate data on the various factors influencing efficiency are lacking in this field. The gas in the sand contains as much as five gallons per thousand cubic feet, and even when diluted with a large percentage of air, is a profitable source of gasoline. Mr. Ambrose recommends that all right-angle bends in lead-line and trap connections, be eliminated in order to reduce slippage.

A paper entitled "Capillary Retention of Petroleum in Unconsolidated Sands," by L. C. Uren and A. H. El Difrawi, was presented by the senior author. This paper records the results of a theoretical and experimental study of the retentive effects of capillarity on crude petroleum in unconsolidated sands. The physical factors responsible for the capillary attraction of sand for oil, are first reviewed.

Results of a series of laboratory experiments designed to disclose the magnitude of the capillary force operative under varying sand conditions, and with different type of oils, are then presented. The experimental data are next used in the development of and evaluation of a mathematical formula which theoretically provides a means of computing the magnitude of the capillary force under any prescribed conditions. Finally, several practical applications of such a formula are discussed.

Two brief papers relating to "Surface Tension Factors Developed in Flotation Research and their application to Flow of Crude Oil," were offered by A. W. Fahrenwald of the Bureau of Mines and Professor A. F. Taggart of Columbia University, School of Mines. Mr. Fahrenwald gave interesting data on the surface tensions of various oils used in mineral flotation, and their interfacial tensions when in contact with water. Professor Taggart claimed that gas bubbles in oil have a tendency to adhere to the sand grains and thereby accentuate the apparent viscosity of the oil.

A PAPER entitled "Some Problems of Foreign Petroleum Operations" was read by Mr. C. A. Naramore. Mr. Naramore has just returned from Russia and Africa where he has been engaged in exploration and drilling activities for the Sinclair interests. This paper emphasized particularly the importance of rigid standardization of all materials sent abroad. From two to three months is occasionally lost through delays in shipment, and an adequate reserve of repair parts for all equipment must be maintained. It is especially important to standardize all drilling tools and tubular goods. Cost records will show that more than half the expense in foreign work is occasioned by loss of time and idleness while awaiting the arrival of essential equipment.

E. L. Estabrook of the Pan American Exploration Co., also contributed discussion on the problems of foreign operations, dealing particularly with conditions in Venezuela and Mexico. All supplies and equipment now used in the Lake Maricaibo region, must be purchased in the United States perhaps six months before their time of use. New fields are being found at brief intervals, and it is exceedingly difficult to foresee all needs so far in advance. In Mexico, the industry is better established and supplies may be purchased locally.

Prof. C. R. Fettke, of the Carnegie Institute of Technology, presented a paper entitled, "Core Studies of the Second Sand of the Venango Group." The paper gives the results of porosity and sizing tests to determine the oil content of core samples taken in wells drilled through the productive formation of the Bradford field. In the case of five core studies, porosities range from 3 to 29 per cent, but average about 17 per cent. The oil content of the sands range from 16 to 40 per cent. Assuming an average value of 27 per cent, a ton of the sand would contain only 6 gallons of oil.

L. S. Panyity, in discussing Prof. Fettkes paper, emphasized the value of such data in studying the results of water flooding. Water has a tendency to flood more rapidly through coarse sands, and screen analyses and porosity determinations aid in determining the location of packers in plugging off certain portions of the sand. Operators would find it profitable to spend more money in securing data of this character. Mr. Panyity also questioned the assumption that the less previous shale "breaks" are necessarily persistent.

Mr. Panyity presented a paper descriptive of water flooding practice in the Bradford field. Very few of the wells now being drilled in this field would be commercially productive were it not for the rejuvenation processes employed. From 2000 to 14,000 barrels of oil per acre are being secured by water flooding. All wells are tubed and packed above the productive sands. A variety of different systems of flooding are employed, but the so-called "line flood" and "intensive flood" are generally used. Push-and-Pull powers are commonly employed in the operation of wells. Economic considerations are necessarily uppermost in the exploitation of fields by water flooding. Water wells cost about $2000 each to drill and oil wells a few hundred dollars more.

CAREFUL appraising of each individual tract is important before attempting flooding operations. Coring will be helpful in locating the pay streaks, but the thickness of the productive sand is not an absolute criterion of productive capacity. In general, higher prices are paid for land in the vicinity of acreage upon which the success of the flooding process has been practically demonstrated.

The rate of flow of the flood water through the sand is an important consideration in that it determines the time interval over which operations must extend, and thus influences present-day

values to an important degree. Last year Bradford operators averaged $3.74 per barrel in the sale of their oil. A tract of about 100 acres is about the minimum size for economic exploitation.

The air-gas drive and water drive were compared as practiced at Bradford, and Mr. Panyity believed that neither method is preferable to the other, in that each has its place. Water, however, may be used in small areas, while air cannot. It may appear cheaper to operate with the aid of the air drive because of the fewer number of wells required; but, when the recoveries are compared, the reverse may be true. Unusually high rcoveries—in some cases fully twice the normal recovery—are being obtained through a combined air-water drive, in which a flood is first started with water and allowed to proceed for a time, and then followed by an air drive. Mr. Panyity believes that "recreated gas" in the oil has an important influence on the flooding process.

C. W. WASHBURNE stated that the efficiency of recovery was influenced to an important degree by the rapidity of travel of the flood, becoming less efficient as the rate of advance increased. He believed, therefore, that highly porous coarse-grained sands should therefore be expected to flood less perfectly than finer and less porous sands. He thought, however, that the rate of advance in coarse sands could be restrained somewhat through the use of air back-pressure on the pumping wells.

J. L. Rich presented a paper entitled "A Proposed Method of Oil Recovery by Mining and Flooding." The method is a variation of one previously proposed by Mr. Rich, in which mine openings are driven in the wall rocks, either above or below the oil sand, while a narrow slot cut along the floor or roof of the tunnel, penetrates the oil sand and accomplishes drainage. It is proposed to cut the slots by means of a drag cable, operating through a bore hole connecting to shafts or tunnels. The cutting of stone in this way is common in quarry work. After being formed, the slots may be closed along the lines where they make contact with the tunnels, and gas thus excluded from the mine workings. Oil is taken from the slots at intervals, into a closed drainage system. It is thought that the method would not be applicable to unconsolidated sands in its present form. Mr. Rich proposes to cut a series of such slots at intervals between two drifts, and then apply water, or water containing a flooding agent, to the alternate channels, thus driving the oil to the intermediate slots. It is thought that the flood water might be heated to reduce the viscosity of the oil.

Assuming that working shafts cost $40 per foot, tunnels $10 per foot, and channel $3 per foot, Mr. Rich estimates that the development costs would range from $900 to $1320 per acre. Shaft costs would vary with the depth of deposit, but are estimated at $25 per acre per 100 feet of depth. In comparison with these figures, wells cost $1200 per acre in the Kansas fields.

ASSUMING a recovery of 24 barrels per linear foot of tunnel and groove, which has been the average volume secured in the French oil mine in Pechelbroun, Alsace, Mr. Rich believes that his method would be only slightly more costly than the compressed air drive method, but the oil recovery would be much greater. Flooding is more expensive than mining, and the yield also lower. Oil mining would appear to be a commercial proposition at the present time, under favorable conditions.

Seminole Output at Tank Builders Heels

(Continued from page 18)

boro and Eight-Six; that if those two areas were halted now, present pipe line outlets and those under construction, with the new tankage going in, would handle the present production satisfactorily.

Current production is ranging from 60,000 to 70,000 barrels above what the pipe lines can move from the field. Stocks in the field had, on Feb. 15, reached the million barrel mark. With tankage room of about 2,120,000 barrels there was available, at the 70,000 barrel a day rate of storage, room for about 30 days' production. With 875,000 barrels more storage building, at the same rate of excess production there would be about 12 days' more storage. Tankage in the stage of grading and locations made totalled 1,145,000 barrels more.

The present figure on oil that must go to storage is increasing right along with further and big increases almost certain, unless some form of restriction is adopted. Then the tankage is not distributed in accordance with current company production.

Barring some form of shut-down that will considerably curtail production, a cut in price appears inevitable. If purchasers simply accept the situation as it stands and go heavily into a storage campaign, they will be certain to figure the cost of the campaign against the price of the oil. Added to the usual construction cost, insurance and other carrying charges, there will be a heavy evaporation loss to figure on much of this stored oil, for the exigencies of the situation demand construction in quickest possible time, with the result that wood-top tanks figure prominently in the field. In fact, some oil has even been stored in tanks before any roofs were on, so close is production on the heels of tank builders.

Ohio Gas Men to Hold Technical Sessions

COLUMBUS, O., Feb. 19.—The Ohio Gas and Oil Men's Association will have sectional meetings on gas production and distribution at its convention in the Elks' Home here March 1 and 2.

J. M. Gerard is coming from Florida to preside at the general sessions on the afternoon of the first day and the morning of the second day. At the latter general session a paper by Judson C. Welliver, director of public relations, American Petroleum Institute, will be read, Secretary W. H. Thompson announced this week.

A banquet will be held in the Elks' Home the night of March 1. Arrangements are being made by Miss Rose Stone, secretary to Mr. Thompson.

Send Flowers to Associate's Wife

COLUMBUS, O., Feb. 19.—Flowers were sent by the Ohio Petroleum Marketers' Association to Mrs. J. L. Marsh who is ill at her home in Youngstown. She is the wife of J. L. Marsh, Vahey Oil Co., one of the most active members in the Ohio association. Their two children also are ill.

Marland Refuses Request To Withdraw His Bill

Staff Telegram

TULSA, Feb. 22.—E. W. Marland has telegraphed a refusal from Atlantic City to accept the proposal of a special committee of the Mid-Continent Oil & Gas Association that he withdraw his bill now before the Oklahoma legislature and cooperate with the association in working out the terms of legislation to be offered.

The special committee was appointed Feb. 7. J. C. Denton, vice president of the Mid-Continent Petroleum Corp. is chairman and the members are lawyers familiar with oil and gas law. D. A. Richardson, counsel for the Marland interests, is a member. The wire asking Mr. Marland to hold up consideration of his bill and cooperate was sent after a meeting of the committee last Friday.

Mr. Marland's reply follows:

"While it may be possible that no legislation can be passed at this session of the legislature in the face of the violent opposition of oil men towards any law to stop the waste now going on I cannot acquiesce in your proposal to me that no attempt be made to pass such a law."

This action by Mr. Marland is interpreted by many as the end of the truce agreed upon and suggested by members of the legislature two weeks ago. Mr. Marland will proceed to fight for the passage of his bill and the only action possible for the rest of the Oklahoma industry is opposition to the bill with possibly a counter proposal to the legislature.

Automatic Devices Control Servicing Gas To Wells Flowing by Gas Lift

NEW YORK, Feb. 18

NEW practice in the operation of the gas lift in the Panhandle field in Texas was disclosed to oil company engineers attending the A. I. M. E. sessions here this week by E. O. Bennett, chief production engineer of the Marland Oil Co. of Texas, in a paper prepared by himself and K. C. Sclater, chief production engineer of the Marland Oil Co. of Oklahoma.

Methods worked out by these engineers for starting a well flowing by means of the gas lift with a minimum of gas pressure were described; also methods of controlling volume and pressure of gas on individual wells to what would give the most efficient production of oil.

The paper by Messrs. Bennett and Sclater went into detail in many aspects of the gas lift. Since National Petroleum News, however, in its Feb. 2nd issue, printed the first and exclusive story of Marland's use of this new method of production in the Texas Panhandle, what has been published here of their paper is important phases not taken up in National Petroleum News' own story.

* * *

THERE are several types of casing-heads on the market which are used for supporting tubing in gas lift wells. They are all of the "packed" type and give more or less trouble from leakage where exceedingly high working pressures are required for "kicking off" or starting wells. Experiencing considerable difficulty in obtaining satisfactory heads for gas lift work, a new type of head was designed. Figure 3 shows the particular features of this new head.

It is of the "packless" type and has been found entirely satisfactory on all pressures used. The head consists of a forging turned and threaded to fit the casing oil string. The upper part of the head has a tapered seat turned and ground to the angle shown. A special collar ground to the same taper as the seat is used on the tubing. The weight of the tubing holds the collar in the seat.

On account of the small area exposed to pressure the head will seat tightly against extremely high pressures. Twenty-four hundred feet of 2½ inch tubing provides sufficient weight to hold pressures in excess of 5000 pounds per square inch. A heavy grease is smeared over the tapered collar before it is seated forming a perfect seal. A common tubing spider and slips are set on top of the head when it is desired to change the position of the tubing.

Another style of "packless" head is at the present being made, in which the upper part of the head is recessed for slips similar to the ordinary tubing heads in general use, and side connections of proper size provided for the gas inlets. The packless type head has been found more serviceable and less expensive than heads now on the market.

Head Connections or "Christmas Trees"

IN the "Christmas Tree" set up frequently used for flowing deep wells in California, a packed head is used. Connections are so arranged that gas may be introduced through the tubing, or between the tubing and casing. These connections are made in order that the fluid column in the well may be rocked until the oil becomes sufficiently aerated to start the well flowing with the lowest possible working pressure.

In deep wells it is necessary to rock the column several times in order that the well may be started. Where wells are exceptionally deep, it is sometimes necessary to raise the tubing and flow off part of the head, then suddenly lower the tubing and repeat until the working condition desired is reached.

After the lowest position of the tubing is reached, it is desirable and necessary to keep continuous operation at all times to prevent the necessity of re-starting, which takes time, causes a loss of production, and is expensive. The "Christmas tree" can be supported on a wire line in the derrick, so that it may be readily swung out of the way when the position of the tubing must be changed.

In the Panhandle field of Texas the method used by the engineers of the Marland Oil Co. for starting a well is as follows:

Gas is first admitted to the tubing and allowed to pass up through the oil between the tubing and casing for about one hour. The aeration of the column is then sufficient to cause the mixture to flow from the well. As soon as the flow starts the direction of the input gas is suddenly reversed, gas being applied to the annular space and the tubing is opened to flow. The volume of the aerated oil in the space between the tubing and the casing is much greater than the volume of the tubing, so that a lowering of the level in the annular space by gas pressure causes the light mixture in the tubing to rise rapidly and flow out, thus starting the well.

BY using this method, wells flowing from 3000 feet have been started on a maximum working pressure of 250 pounds, whereas 600 pounds pressure is often not sufficient to "kick off" the same wells directly through the tubing. The working pressures in most of the wells in the Panhandle vary from 125 to 175 pounds. The production of these wells ranges from 5 to 1700 barrels per day.

Another method, called "super-flushing," is used for starting wells on the gas lift in the Panhandle area. It consists of starting the gas through the tubing similarly to the method previously described. After the flow has been started from the annular space, a large

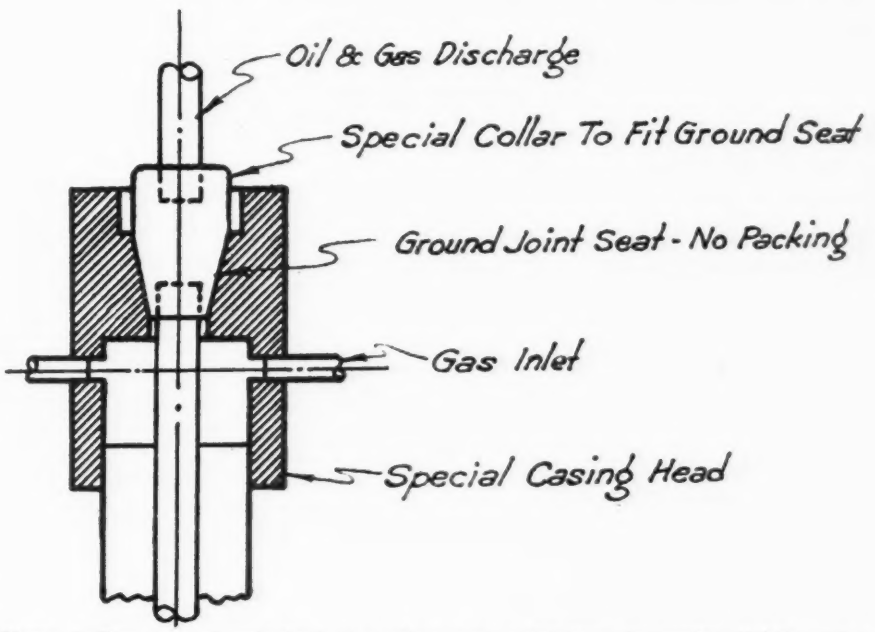


Figure 3—New type of casinghead of packless type, satisfactory for seating tightly against high pressures

volume of gas is suddenly released through the tubing, expelling practically all the aerated fluid in the well. The direction of flow is then reversed and the flow started through the tubing. This method requires less time and lower pressures than any other. A well requiring a normal working pressure of 180 pounds has been started in this manner on a maximum pressure of 230 pounds. Flow is established into the tubing at the well head within two or three minutes after "super-flushing" takes place.

Rocking or reversing wells that will normally operate on pressures up to 175 pounds eliminates the necessity of installing high pressure compressors for "kick off" purposes and permits the construction of larger plant capacity for a given amount of money. In the "Christmas tree" arrangement used by the Marland Oil Co. in the Panhandle district, connections are provided so that the flow may be obtained either through the casing or the annular space between the tubing and casing the same as in California practice.

WHERE a well can be put in operation on the gas lift by rocking and reversing, starting pressures higher than the original rock pressure in the sand can generally be eliminated. Allowing the starting pressure to exceed the rock pressure is extremely dangerous and subjects certain types of wells to very harmful effects. If there is any mud or paraffin accumulated in the hole and the direction of pressure differential is reversed, even for a short time, due to a high starting pressure, the walls of the hole will become plastered and the drainage area partly closed. When normal flow is again established, the wells do not regain their original condition and must be cleaned, causing a delay and loss of production.

Where reversing requires pressure in excess of twice the working pressure of the compressors, it is advisable to have a separate source of high pressure gas available. Most compressors will stand a load of twice normal working pressure, which may be required for starting. Figure 6 shows a scheme where a high pressure line is laid to all wells for starting purposes. This line carries gas from a single high pressure machine at the main compressor station.

Figure 7 shows an arrangement where a single stage high pressure compressor of small volume is installed at a control station. With this arrangement the intake gas to the compressor is taken from the field distribution line which normally supplies all control stations and wells. This gas is compressed and then flowed to the well which is to be started. The control manifold as shown permits one small compressor to handle several wells receiving gas from a control station.

Finishing Wells

IT is of great importance to finish a well with proper facilities for putting it on gas lift at a later date without interrupting its flow. With sufficient forethought and study this can usually be done with but little trouble and expense and will result in a saving in time and production. Head connections should always be provided for flowing either through or around the tubing.

Heaters on Flow Lines

ON account of the low atmosphere temperatures existing in the Panhandle, heating the flow lines at the wells during the winter period is necessary in order to prevent them from becoming plugged. It has been found advantageous to apply the heat to the gas and have it imparted to the oil in the upper part of the tubing inside the well. This keeps the paraffin from forming in the top section of the tubing and makes it slightly easier to start the scraper in the well. The effect of some heat at the top of the well is to keep the tubing open to its maximum diameter where the expansion of the gas is greatest. When heat is put in the well as described, oil can be delivered to the stock or gauge tanks through the flow lines without the addition of more heat.

Two principal types of heaters are used in connection with gas lift work. The steam heater has been more successful, owing to the difficulty on account of breakage in welds in the direct flame type. The flame type, however, is more efficient.

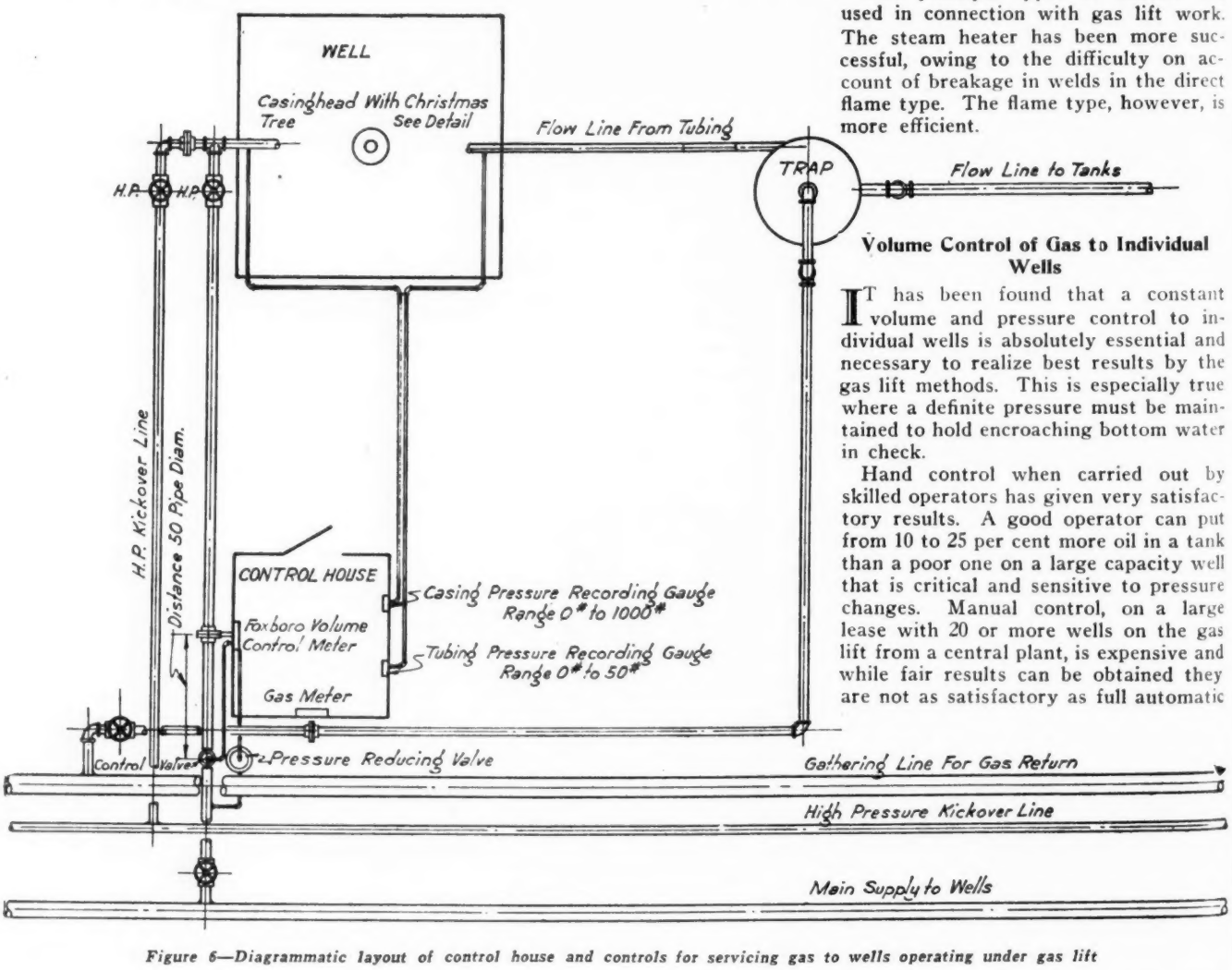


Figure 6—Diagrammatic layout of control house and controls for servicing gas to wells operating under gas lift

Volume Control of Gas to Individual Wells

IT has been found that a constant volume and pressure control to individual wells is absolutely essential and necessary to realize best results by the gas lift methods. This is especially true where a definite pressure must be maintained to hold encroaching bottom water in check.

Hand control when carried out by skilled operators has given very satisfactory results. A good operator can put from 10 to 25 per cent more oil in a tank than a poor one on a large capacity well that is critical and sensitive to pressure changes. Manual control, on a large lease with 20 or more wells on the gas lift from a central plant, is expensive and while fair results can be obtained they are not as satisfactory as full automatic

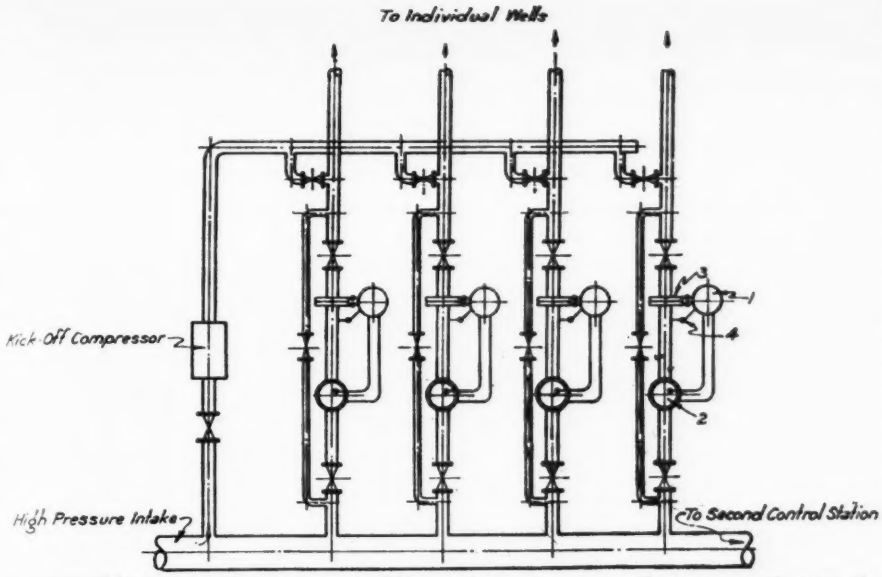


Figure 7—Diagrammatic layout for controlling servicing of gas to wells from central automatic control points. 1—Differential and static recording pressure gage with differentially operated pilot valve. 2—Diaphragm volume control valve operated by high pressure gas through pilot valve. 3—Orifice plate. 4—High pressure gas to pilot control valve

control. Some operators prefer manual control; however, it is the opinion of the writers that automatic control is better and that its cost is soon paid for and considerable earnings shown by the increased production resulting from its use.

The automatic control is new but is coming into general use in the Texas and Mid-Continent Fields. The writers prefer to use the central control point installation handling a group of wells from each control station. Figure 7 shows a diagrammatic layout of the control distributing points which service several wells.

An orifice is installed in each individual well line as shown at 3. One shows the regular orifice meter equipment. Four is a pressure line which connects to a pilot valve built in the regular metering equipment. Two lines run from the pilot valve to a balanced piston diaphragm control valve, 2, which is placed ahead of the orifice. As the differential changes, it operates the pilot valve which admits gas to either the top or bottom of the diaphragm chamber.

IF the flow is increased, the differential becomes greater and admits gas to the proper side of the control valve which closes and restricts the supply. When the volume decreases, the reverse action takes place. This type of equipment is very valuable in maintaining steady production and constant gas factors. This type of control will maintain daily production constant within one half of one per cent, where it is not affected by natural decline at a greater rate.

After a well has been studied and the proper size orifice installed the well will operate steadily. As the production changes, due to natural decline, the size of the orifice must be changed from time to time to maintain the proper working differential. Orifice changing valves, commonly used in the natural gas industry, are valuable in this work and eliminate the necessity of by-passes in the installation. The arrangement of the control stations allows a large volume of high pressure gas to become packed in the lines between the control station and the compressor plant.

The gas packed in the system is sufficient to care for surges when starting wells or changing working conditions. The surplus gas stored in the system permits operation from a central plant without upsetting the equilibrium of the system. It is more economical to build a central plant than to construct individual compressors at each well from the standpoint of both equipment and labor. It is, however, very desirable to have two or three portable compressors mounted on wheels which may be connected up to wells to find out their characteristics before the installation of a large plant on a lease. By testing each well for a sufficient period, the total plant requirements may be ascertained and the correct size of compressors determined.

Location of Control Stations

IT is important to have control stations located at least 200 feet away from the nearest well. This is to permit tmeperature equalizations befor the gas reaches the well, instead of injecting the low temperature gas directly into the well. The low temperature occurs where the gas is expanded through the control valve from the header system to the individual well lines.

A method of control which will give stable operation without the necessity of any automatic equipment is also being used in the Texas Panhandle. Its use is made possible by the physical law governing the flow of gas through small orifices under high differentials.

CLEVELAND, Feb. 18.—Frank B. Fretter, president of the National Refining Co., and a director of the American Petroleum Institute, with Mrs. Fretter, is making a trip to California. They will return to Cleveland the latter part of March.

Results of Gas Lift Installations in the Panhandle

Actual results in increased recovery of oil and saving in lifting costs in group of ten Marland Oil Co. wells in Texas Panhandle.

				Whittenburg "A"					Weatherly	Total
Well Number	**3**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**13**	**B-1**	
Date of Putting on Gas Lift	1- 4-27	11-26-26	12-21-26	1- 8-27	11-19-26	11-22-26	1-10-27	1-16-27	10-14-26	10- 7-26	
Production Previous to Putting on Gas Lift	60 Bbl.	0	310	20	500	425	50	70	620	25	208
Average Daily Production While on Gas Lift	72 Bbl.	1,089	1,106	56	854½	344	117	128	411	60	423.7
Total Production For Period on Gas Lift	1,599 Bbl.	26,115	34,247	945	5,127	22,727	1,865	1,405	37,320	3,240	132,640
Average Daily Production on Basis of Normal Decline	60 Bbl.	0	Well Would have been Dead	30	350	195	40	63	235.5	15	99
Total for Period on basis of Normal Decline	1,320	0	2,000	510	2,100	12,870	640	715	21,670	810	42,635
Gain in Barrels By Gas Lift Over Normal Decline for the Per.	279	26,115	32,279	435	3,027	9,857	1,225	690	15,560	2,430	90,005
Value of Gain at $1.25 per Bbl.	349	32,650	40,812	544	3,783	12,321	1,531	862	22,044	3,000	112,506
Saving and Lifting Cost $	159		4,500	93	512	2,272	186	140	3,732	324	11,918
Total Gain in Dollars	508	32,650	45,312	637	4,295	14,593	1,717	1,002	25,776	3,324	124,424
Percentage Increased Production by Gas Lift Over Normal Decline	21.15	Infinity	Infinity	85.4%	144.0%	70.0%	191.0%	96.5%	57.7%	300%	211.5

Seminole is Greatest Experiment In Stimulated Production

By A. F. Hinton
N. P. N. Staff Writer

TULSA, Feb. 18

SEMINOLE, may well be classed as the oil industry's greatest experiment. It marks the beginning of a new era in the science of oil production. As this territory develops it will add immeasurably to engineering knowledge of production obtained by artificial pressure.

It is an experiment because never before in the industry has there been so wide-spread an application of mechanical stimulation in a major field still in its flush stage, with development proceeding intensively at the same time. In the past, gas-lift or air-lift has been tried out after all other expedients had been tried and found wanting.

At Seminole, some wells have been put on gas-lift before they have stopped their natural flow, while it has become general practice to provide gas-lift equipment and have it ready, so that, when a well ceases to flow, it is put on high pressure gas immediately.

It may mark the beginning of a new era because, if the final balance sheet shows the gas-lift to have been efficient and economical, it will relegate pumping to the background as the standard method of producing non-flowing wells.

Most engineers believe that Seminole, operated practically from its inception on gas-pressure, will show a percentage of recovery from the sand higher than ever before attained. Ultimate recovery from the field, therefore, will be higher than with other methods. They believe, also, that, by experiment and practise, it will be possible to continue flowing these wells on gas until they get down to very small production.

The executive views with some apprehension the large amount of expensive equipment necessary for gas-lift installations, and wonders what he is going to do with all those compressors if the field goes into a sudden decline, with the wells failing to respond longer to stimulation. He has to admit that it is undoubtedly getting results at the moment, and he cannot afford to produce 500 to 1,000 barrels a day by swabbing, while his neighbors are getting from 2,000 to 6,000 barrels by gas-lift.

A recent count shows there are 88 wells flowing on air-or gas-lifts out of a total of 219 in the entire Seminole district. These wells are producing 156,306 barrels a day out of the field's total of 303,607 barrels. This indicates that 40.2 per cent of all the wells in the field, including Hunton lime wells and the so-called shallow wells at Earlsboro, are producing 51.4 per cent of the total production. It is impossible to get an accurate count of the compressors in use, but it will probably average two to the well. At that rate, there are 175 compressors in operation in the field, not including those installed but not operating.

The number of wells on gas-lift is steadily increasing because as a general thing in the main body of the field, new wells do not flow and are put on gas as soon as possible after completion. Wells which have been flowing are put on the gas as soon as they cease flowing. It is characteristic of Seminole that completion reports of new wells usually show a "hole full of oil" and the well making its production on the swab. In a day or two, a supplementary report on the same well will show "flowing with gas, 3,600 barrels" or some such figure. The number of wells added to the completed column during the week means nothing unless we also know the number of wells put on gas-lift during the same period. On several recent occasions, the field has recorded production increases of 25,000 to 50,000 barrels daily over the preceding week, while the reports showed only 10 or 12 new wells, most of which did not flow at all when drilled in. The big increases were brought about by additional wells being put on gas.

This situation has confounded all the prophets as to the field's future performance and has made a well-regulated decline curve—by which some insight into the future ordinarily may be had—an impossibility as far as Seminole is concerned. Nobody knows what a well is going to produce when it is put on gas-lift, and, in addition, nobody knows how long it will keep its production up, nor how rapidly it will decline.

In Seminole proper, there are 85 wells on gas-lift out of a total of 184, or 46.2 per cent. These wells are producing 150,616 barrels daily, as compared with the field's total of 246,015 barrels, or 61.4 per cent. At Searight, only two wells are on gas-lift out of 18 wells in the field, and are producing 1,490 barrels out of a total of 27,965 barrels. In the Lima field, in township 8-6, only two wells are producing and one of them is on gas-lift.

This well is the Indian Territory Illuminating Oil Co. No. 1 Davis, in section 13. It was flowing 3,750 barrels daily, but was showing about four per cent water and b.s. when it was decided to put it on gas, probably with the hope of holding back the water while increasing the oil production. The well jumped to 4,085 barrels the day after gas had been applied and is making 4,200 barrels at present, with no increase in water. At Earlsboro, the remaining one of the four fields that comprise the district, no wells are on gas-lift.

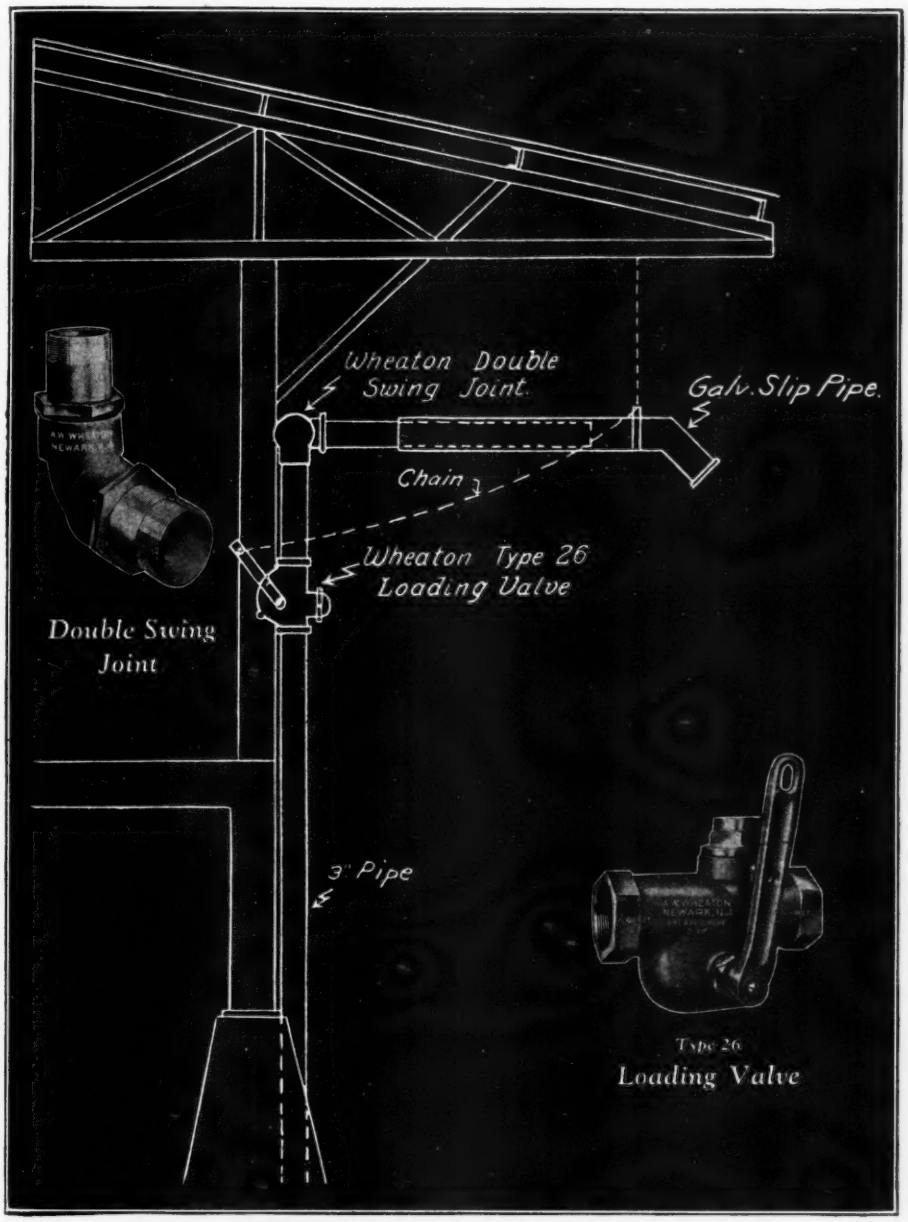
Judging by performance of wells on the Swab, as compared with their gas-lift production, it is indicated that wells now flowing in gas could not make more than one-fourth of their present output by swabbing or other ordinary production methods. If this is true, these wells would be producing 39,000 barrels daily instead of 156,300 barrels, and the Seminole district's total production would be 186,380 barrels instead of 303,600, if it were not for the gas-lift. This would be a reduction of 38.6 per cent. In Seminole proper, if the same reasoning is applied, production

(Continued on page 43)

Drilling Operations in Okla., Kan., Tex. & N. Mexico, week ended Feb. 19

	Feb. 19					Week Ended				Feb
OKLAHOMA	Loc.	Rigs	Drg.	S.D.	Total	Loc.	Rigs	Drg.	S.D.	Total
Burbank	8	10	27	...	45	4	7	30	...	41
Other Osage	20	15	31	3	69	15	11	31	1	58
Bristow-Cushing	16	11	95	10	132	12	8	102	13	138
North Oklahoma	8	18	106	39	171	13	17	104	40	174
South Oklahoma	22	28	210	40	300	24	22	205	43	294
Muskogee	..	11	31	22	64	...	13	28	24	65
Okmulgee-Bristow	3	65	121	29	218	3	61	114	35	213
Tonkawa	2	...	1	4	7	2	...	1	4	7
Seminole Dist	39	111	450	24	624	46	97	439	37	619
Total Oklahoma	118	269	1072	171	1630	119	236	1054	197	1606
KANSAS	78	76	202	99	455	78	76	202	99	455
TEXAS										
C-E Texas	..	150	291	112	553	...	123	285	158	566
Panhandle	..	186	270	88	544	...	187	265	83	535
N-C Texas	..	64	93	39	196	...	59	78	43	180
West Texas	..	96	170	44	310	...	98	181	40	319
Total Texas	...	496	824	273	1603	...	467	809	324	1600
GRAND TOTAL	196	841	2098	543	3688	197	779	2065	620	3661
NEW MEXICO	10	3	28	33	74	8	1	28	32	69

Engineers Approve This Installation



Sizes: Wheaton Type 26 Loading Valve—2, 2½, 3 and 4-inch. Wheaton Double Swing Joint—2, 2½, 3 and 4-inch

This blue print shows installation of Wheaton Type 26 Loading Valve and Wheaton Double Swing Joint as approved by leading engineers.

Here is a simple, practical, correct loading station installation used and approved by many engineers. By the use of Wheaton Type 26 Loading Valve, all pressure is removed from the Double Swing Joint. Type 26 is a straight valve, designed especially for mid-line location. Overflow is prevented because the valve is self-closing—the operator must hold it open while loading. This is done by means of a chain from the valve to the tank truck. Type 26 is counterbalanced, assuring slow, smooth, soft closing—preventing jars and shocks in the pipe line.

Both Wheaton Type 26 Loading Valve and the Wheaton Double Swing Joint are made of special analysis, high grade, brass alloy—tempered, toughened and tested for the hardest wear. They are machined and finished with the greatest accuracy. Because of this high quality of material and workmanship, they give long and efficient service. They cannot rust or corrode—last indefinitely—and always operate smoothly.

Send for a sample of either or both of these Wheaton Products. If they are not entirely satisfactory you may return for refund or full credit. Also ask for copy of the Wheaton Catalog.

A. W. WHEATON BRASS WORKS
NEWARK, NEW JERSEY

Wheaton

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Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended Feb. 18 (By Telegraph)

	Kansas	Oklahoma	North and Cent. Texas	North La.-Ark.	Total Week Ended Feb. 18	Total Week Ended Jan. 21
Plants Reporting	23	46	41	14	124	124
Crude Cap. (Bbls.)	98,200	65,900	144,300	53,700	462,100	462,100
Cracking Capacity	21,000	45,800	15,750	20,200	102,750	102,750
Da. Av. Crude Runs	57,666 + 1.5	111,140 + 1.1	67,353 — 0.3	51,222 — 0.2	287,381 + 0.6	281,281
Da. Av. Other Oils	6,883 +87.0	2,711	4,879 +72.0	1,212 — 32.2	15 635 +89.8	11,509
GASOLINE—Gallons						
Stocks Feb. 11	12,297,587	*60,423,626	15,346,743	4,117,076	*92,185,032	68,030,034
Prod. 2-11 to 2-18	8,688,576 + 8.5	16,703,238 + 3.2	7,139,204 + 3.8	3,815,744 + 0.6	36,346,762 + 4.2	36,635,415
Ship. 2-11 to 2-18	9,707,433 +35.3	12,385,431 — 1.7	5,932,740 — 5.6	3,616,793 + 18.1	31,642,397 + 8.9	30,969,089
Stocks Feb. 18	11,278,730 — 8.3	64,741,433 + 7.1	16,553,207 + 7.9	4,316,027 + 4.8	96,889,397 + 5.1	73,696,360
Ratio Sales to Prod	111.7%	74.1%	83.1%	94.8%	87.1%	84.5%
KEROSENE—Gallons						
Stocks Feb. 11	2,671,996	7,105,047	2,137,286	957,995	12,872,324	12,735,708
Prod. 2-11 to 2-18	1,718,217 +10.0	2,739,068 + 6.8	1,603,316 +21.1	483,096 + 9.7	6,543,697 +11.1	5,594,746
Ship. 2-11 to 2-18	2,129,822 — 2.0	2,307,417 + 3.0	1,630,942 +26.5	319,385 — 13.6	6,387,566 + 5.2	6,086,880
Stocks Feb. 18	2,269,391 —15.4	7,536,698 + 6.1	2,109,660 — 1.3	1,121,706 + 17.1	13,028,455 + 1.2	12,243,574
Ratio Sales to Prod	124.0%	84.2%	101.7%	66.1%	97.6%	108.8%
STOVE DISTILLATE—Gallons						
Stocks Feb. 11	1,723,002	3,362,698	927,976	65,074	6,078,750	9,556,146
Prod. 2-11 to 2-18	621,356 + 4.2	758,824 +19.2	466,747 +49.6	84,486 + 7.8	1,931,413 +19.0	1,819,826
Ship. 2-11 to 2-18	752,715 + 3.9	755,286 —18.8	299,993 —43.6	109,754 +157.2	1,917,748 —14.0	3,187,164
Stocks Feb. 18	1,591,643— 7.6	3,366,236 + 0.1	1,094,730 +18.0	39,806 — 38.8	6,092,415 + 0.2	8,188,808
Ratio Sales to Prod	121.1%	99.5%	64.3%	129.9%	99.3%	175.1%
GAS OIL—Gallons						
Stocks Feb. 11	3,053,563	31,835,749	10,103,749	3,972,397	48,965,458	47,875,105
Prod. 2-11 to 2-18	1,925,089 +11.3	3,069,039 + 6.5	1,317,581 +40.1	2,814,774 — 7.6	9,126,483 + 6.1	6,976 732
Ship. 2-11 to 2-18	1,633,168 —11.6	2,164,793 + 1.3	626,020 + 3.6	2,095,733 — 11.1	6,519,714 — 6.1	7,531,013
Stocks Feb. 18	3,345,484 + 9.6	32,739,995 + 2.8	10,795,310 + 6.8	4,691,438 + 18.1	51,572,227 + 5.3	47,320,824
Ratio Sales to Prod	84.8%	70.5%	47.5%	74.5%	71.4%	107.9%
FUEL OIL—Gallons						
Stocks Feb. 11	9,198,353	48,079,395	12,373,312	5,978,803	75,629,963	81,706,729
Prod. 2-11 to 2-18	5,722,696 + 9.2	7,115,782 + 4.5	8,204,795 + 1.1	7,479,018 — 2.6	28,522,291 + 2.5	28,336,536
Ship. 2-11 to 2-18	6,122,737 +35.2	9,157,497 +12.5	7,205,266 + 3.0	7,688,632 — 2.9	30,174,132 + 9.4	31,161,095
Stocks Feb. 18	8,798,312 — 4.3	46,037,680 — 4.2	13,372,841 + 8.1	5,769,289 — 3.5	73,978,122 — 2.2	78,882,170
Ratio Sales to Prod	107.0%	128.7%	87.8%	102.8%	105.8%	110.0%

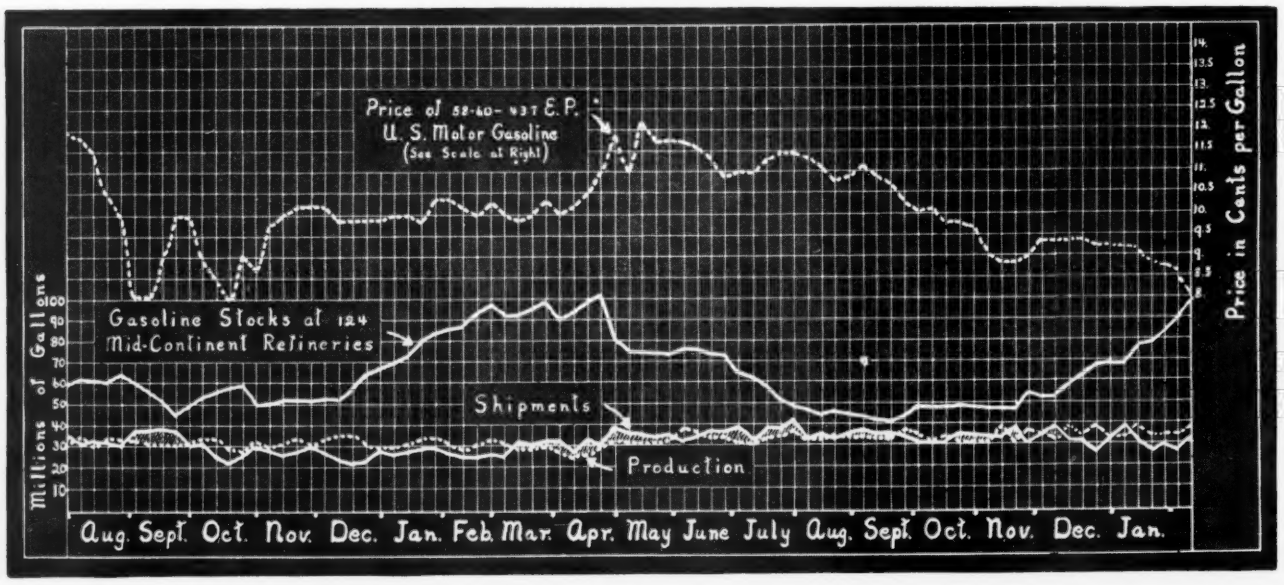
*Revised due to reporting additional stocks heretofore classed as unfinished but now available for shipment without rerunning.

Gasoline Produced by Various Methods, Week Ended Feb. 18

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	6,479,620	74.6	12,952,867	77.5	6,055,013	84.8	1,782,643	46.7	27,270,143	75.0
Cracked	1,645,190	18.9	2,853,125	17.1	959,955	13.5	1,702,267	44.6	7,160,537	19.7
Natural	563,766	6.5	897,246	5.4	124,236	1.7	330,834	8.7	1,916,082	5.3
Total	8,688,576		16,703,238		7,139,204		3,815,744		36,346,762	

+ or — columns are % change over previous week.

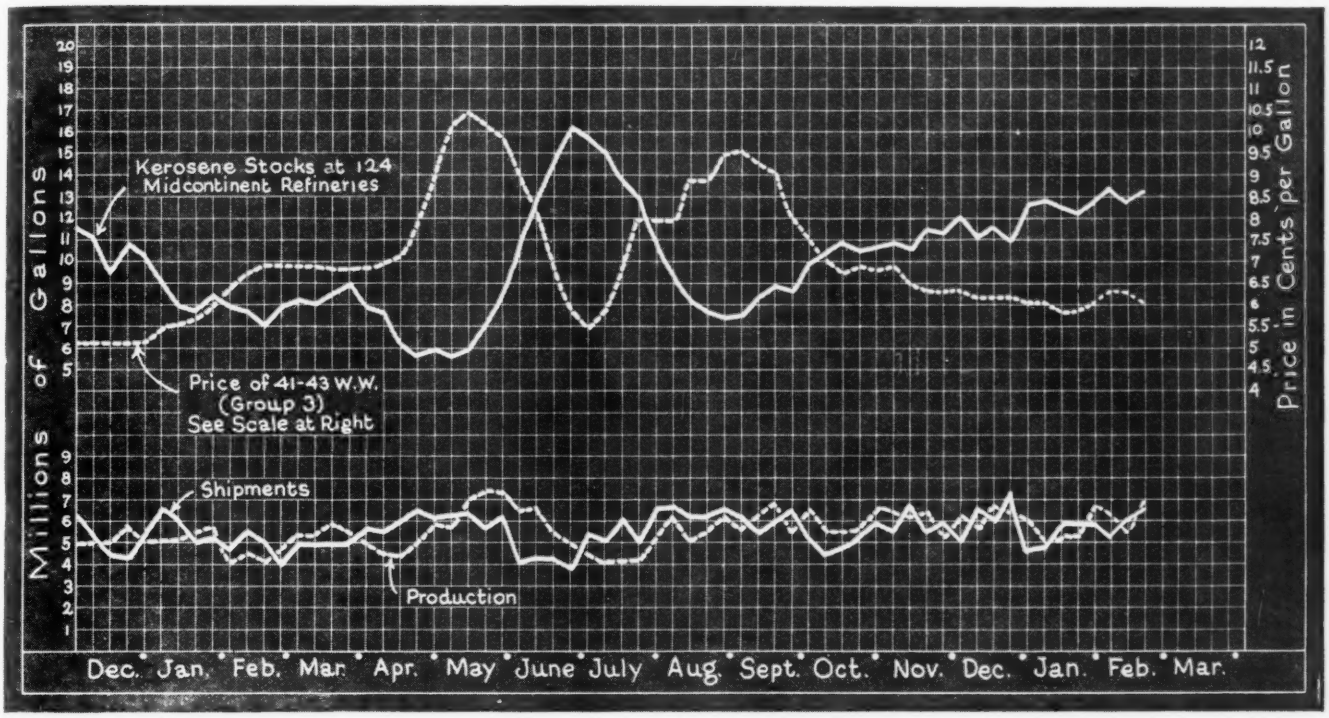
GASOLINE


Price of 52-60- 437 E.P. U. S. Motor Gasoline (See Scale at Right)
Gasoline Stocks at 124 Mid-Continent Refineries
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan.

Barometer of Mid-Continent Refinery Market—Week Ending Feb. 18

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 124 Plants to National Petroleum News

KEROSENE


Millions of Gallons
Price in Cents per Gallon
Kerosene Stocks at 124 Midcontinent Refineries
Price of 41-43 W.W. (Group 3) See Scale at Right
Shipments
Production
Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.

Mid-Continent Gasoline Shipments Turn Upward

Staff Special—By Telegraph

TULSA, Feb. 22.

SHIPMENTS of gasoline from 124 refineries in the Mid-Continent increased 2,500,000 gallons in the week ended Feb. 18, refiners reported to National Petroleum News. Total shipments for the week, 31,642,397 gallons, were the second largest so far this year. In the week ended Jan. 14 shipments totaled 34,560,245 gallons, a volume almost equal to last summer's average shipments.

In the first seven weeks of 1927 gasoline shipments from all reporting plants totaled 212,561,514 gallons. In the corresponding period of 1926 the same plants shipped 184,889,595 gallons. The increase in shipments this year has been 14.96 per cent.

Keeping their crude runs to an average of about 280,000 barrels a day the 124 plants have built up their stocks a little more rapidly than they did a year ago when they were running an average of 250,000 barrels of crude a day. On Jan. 8, 1926, gasoline stocks were 69,506,573 gallons, and on Jan. 7, this year, were 68,116,817 gallons or 1,400,000 gallons less than in 1926. On Feb. 19, 1926, stocks had increased nearly 20,000,000 gallons over Jan. 8 stocks to 89,039,638 gallons. This year stocks of 96,889,397 gallons Feb. 18 were 7,700,000 gallons more than stocks a year ago.

In terms of days' supply gasoline stocks are lower this year than a year ago. On Feb. 18 stocks represented only 21 days' supply at the current rate of shipment which is far below the average for the whole country. On Feb. 19, 1926, stocks of 89,039,638 gallons represented 23 days' supply at the rate of shipments then current.

Production and shipments of both kerosene and stove distillate almost balanced last week. Kerosene stocks increased only 150,000 gallons to 13,028,455 gallons when shipments increased 300,000 gallons. Shipments of stove distillate fell 300,000 gallons to 1,917,748 gallons while production increased 300,000 gallons to 1,931,413 gallons. Stocks at all reporting plants were increased only 14,000 gallons to 6,092,415 gallons.

Fuel oil stocks were reduced as usual nearly 2,000,000 gallons to a new low figure for 1927, 73,978,122 gallons. On Feb. 19, 1926, stocks were 91,806,782 gallons. At the present rate of shipments stocks of fuel oil represent only 17 days' supply. In the last seven weeks fuel oil stocks have been reduced approximately 16,000,000 gallons.

Stocks of gas oil increased 2,600,000 gallons to 51,572,227 gallons. Shipments fell 400,000 gallons as production was increased about 600,000 gallons.

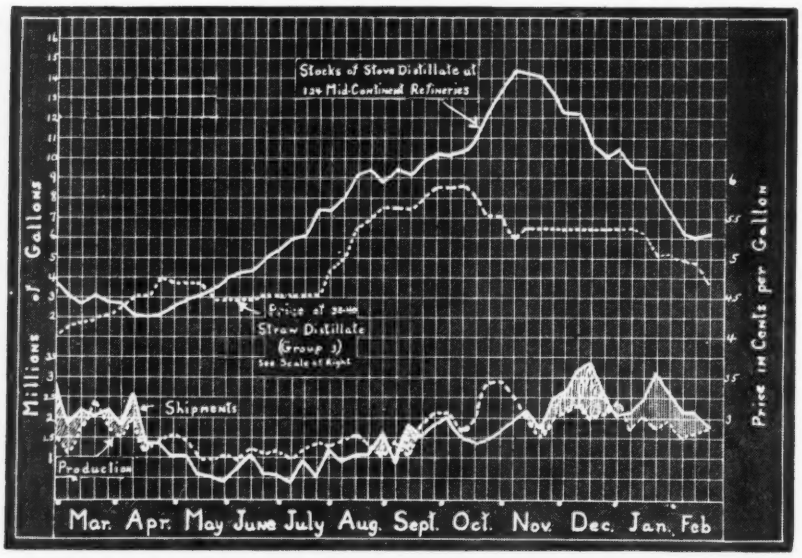
Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Feb. 18. Change in stocks figured from Jan. 21.

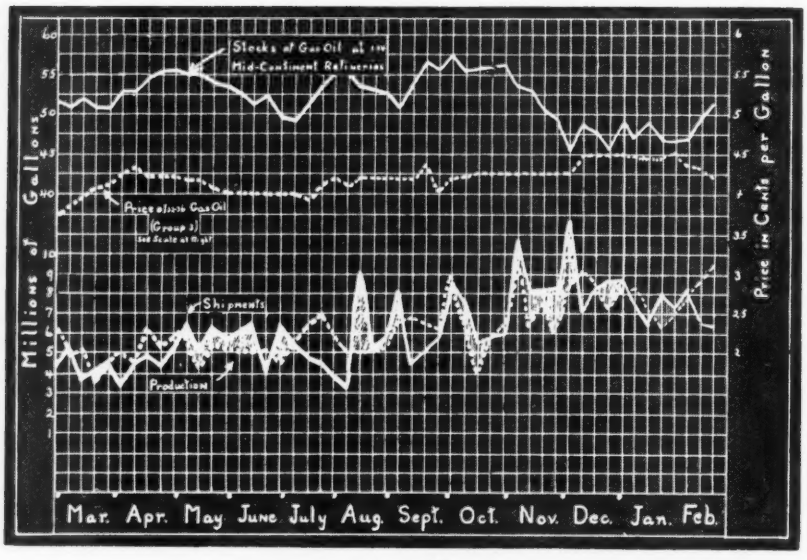
	Gallons
Gasoline	
Production	139,861,159
Shipments	116,668,122
Net change in stocks	+23,193,037
Ratio sales to production	83.4%
Kerosene	
Production	24,609,835
Shipments	23,824,954
Net change in stocks	+784,881
Ratio sales to production	96.8%
Stove Distillate	
Production	6,984,478
Shipments	9,080,871
Net change in stocks	—2,096,393
Ratio sales to production	130.0%
Gas Oil	
Production	32,657,487
Shipments	28,406,084
Net change in stocks	+4,251,403
Ratio sales to production	87.0%
Fuel Oil	
Production	109,766,968
Shipments	114,671,016
Net change in stocks	—4,904,048
Ratio sales to production	104.5%

Barometer of Mid-Continent Refining Market—Week Ending Feb 18

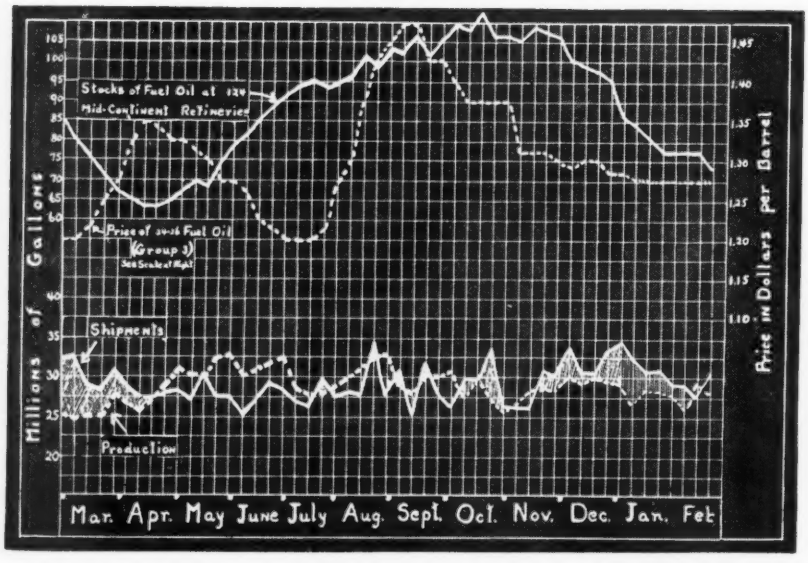
STOVE DISTILLATE


Stocks of Stove Distillate at 129 Mid-Continent Refineries
Price of 28-40 Straw Distillate (Group 3)
See Scale at Right
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb

GAS OIL


Stocks of Gas Oil at 129 Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3)
See Scale at Right
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb.

FUEL OIL


Stocks of Fuel Oil at 129 Mid-Continent Refineries
Price of 24-26 Fuel Oil (Group 3)
See Scale at Right
Shipments
Production
Millions of Gallons
Price in Dollars per Barrel
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb

January Auto Output Increased a Third

CLEVELAND, Feb. 21.—Automobile production in the United States was increased more than one third over December production, reports to the U. S. Department of Commerce show. Passenger car and truck output at U. S. plants in January totaled 234,130 vehicles, compared with 165,822 in December. Canadian production figures are not yet available.

Complete output statistics for Canada and the United States for 1926 shows total passenger car and truck production of 4,464,743 vehicles, or slightly less than the estimate of 4,480,000 cars made before manufacturers curtailed their production programs in December. Comparative output figures follow:

1926			
January	284,703	272,922	11,781
February	334,524	319,763	14,761
March	399,105	381,116	17,989
April	401,836	383,907	17,929
May	394,569	373,140	21,429
June	358,388	339,570	18,818
July	*329,959	*317,006	12,953
August	*393,064	*380,282	12,782
September	363,547	350,923	12,624
October	300,160	289,565	10,595
November	226,278	219,504	6,774
December	143,413	137,361	6,052
Total	*3,929,546	*3,765,059	164,487
1927			
January	.....	196,973	†(2)
1926			
January	*33,517	29,819	3,698
February	41,784	37,707	4,077
March	49,386	45,001	4,385
April	54,135	50,562	3,573
May	51,568	48,063	3,505
June	47,265	44,332	2,933
July	41,873	39,618	2,255
August	47,836	45,333	2,503
September	51,257	46,386	4,871
October	*46,985	*42,910	4,075
November	*39,430	*36,376	3,054
December	30,161	28,461	1,700
Total	*535,197	*494,568	40,629
1927			
January	.....	37,157	†(2)

*Revised. Not yet available.

California Oil Men Will Banquet March 10

Staff Special

LOS ANGELES, Feb. 19—Arrangements are being completed for the annual banquet of the Chamber of Mines and Oil, the organization in California for the oil men, which will be held the night of March 10 at the Biltmore Hotel. The speaker of the evening will be Oscar Lawler, attorney of Los Angeles, and President Chester W. Brown of the chamber will briefly review the activities of the organization during the past year.

It is the custom of the chamber to give over most of the time at annual banquets, to entertainment features rather than to long addresses. The entertainment program is being arranged by the Wildcat Committee, with Ward B. Blodget, chairman. Group tables are to be arranged for companies.

One of the entertainment features will be a "surprise" number, with talent being drawn from the ranks of local oil men.

The LIENTZ RECIRCULATING SYSTEM

Provides

MILD EVEN TEMPERATURES
LARGE VOLUME COMBUSTION GAS
INCREASED THRUPUT AND YIELD
REDUCED MAINTENANCE COST
AND A SUBSTANTIAL SAVING IN FUEL!

REFINERS throughout the country who are now operating the Lientz Recirculating System well realize the important advantages gained and the substantial economies this system effects. They expected marked results before installation—and were highly pleased to see the ease with which they were attained. These advantages should appeal to you, too. We will be glad to explain the Lientz Recirculating System to you fully, adapting it to your present equipment. We will do this, without obligation.

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B. P. LIENTZ & COMPANY
Kansas City, Mo.

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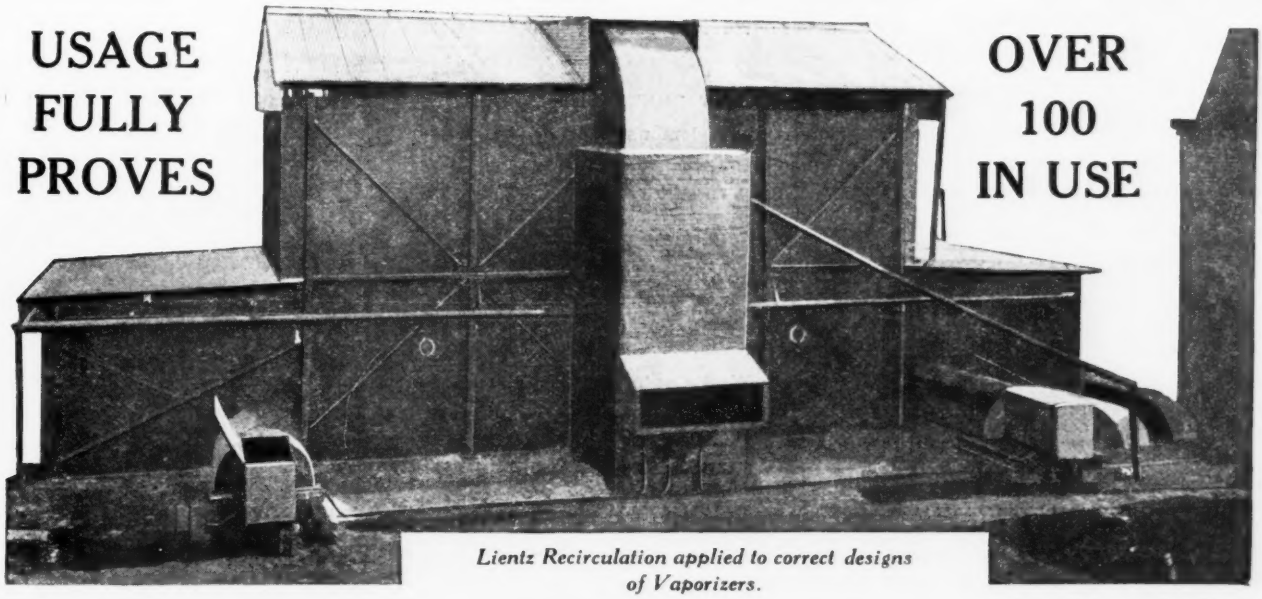
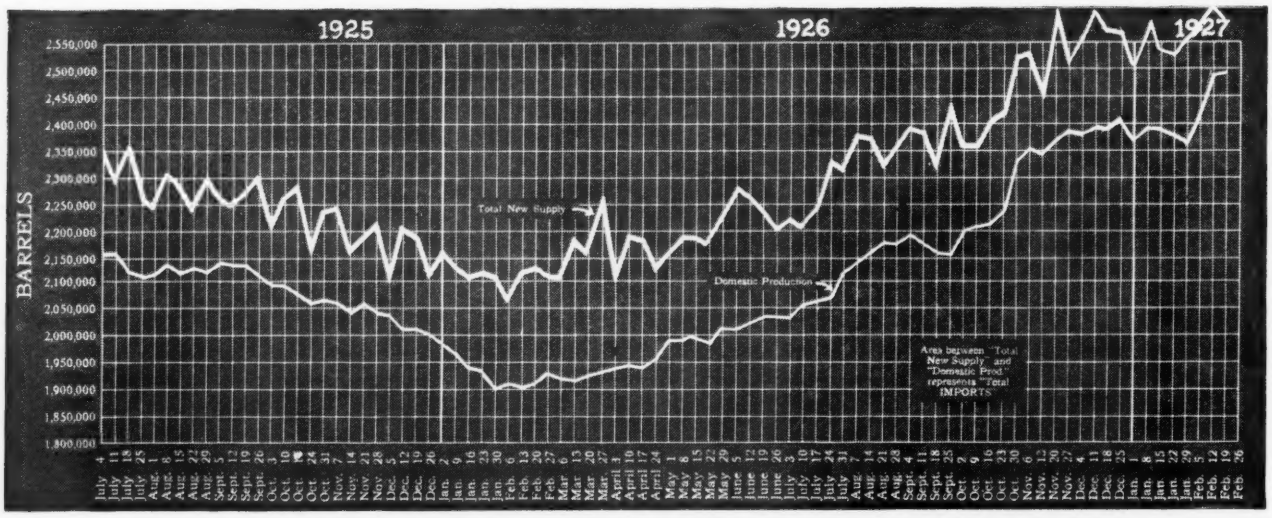
OVER 100 IN USE



Lientz Recirculation applied to correct designs of Vaporizers.

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below, as compiled by American Petroleum Institute

Production Summary

	Feb. 19	Feb. 12
Production east of Rockies	1,832,000	1,820,700
Increase		11,300
Total Production in U. S.	2,472,000	2,462,250
Increase		9,750
Crude Oil Imports	163,000	259,000
Decrease		96,000
Total Crude Supply	2,635,000	2,721,250
Decrease		86,250

OKLAHOMA

	Feb. 19	Feb. 12
North Braman	9,100	8,900
South Braman	4,450	4,600
Blackwell	4,000	4,000
Hubbard	5,750	6,300
Thomas	1,750	1,700
Tonkawa	26,700	26,050
Garber	18,850	18,700
Burbank	49,750	49,200
Osage, outside Burbank	35,100	35,100
Watchorn	2,700	2,700
Cushing	21,200	21,200
Yale Jennings	12,250	12,250
Davenport	4,000	4,050
Bristow-Slick	27,300	27,300
North Okmulgee	16,900	16,900
Lyons-Deaner	4,500	4,500
Stroud	1,600	1,650
Cromwell	13,750	13,700
Papoose	8,200	8,050
Wewoka	18,400	20,150
Seminole	282,600	268,400
Duncan district	6,850	6,800
Graham	8,950	8,950
Fox	1,900	1,900
Healdton	15,000	15,000
Scholem Alechem	14,200	14,250
Hewitt	10,400	10,400
Earlsboro	19,150	17,000
Others	62,550	62,300
Total Oklahoma	707,850	692,000
Increase		15,850

KANSAS

Greenwood County	42,100	42,900
Florence-Covert	1,900	1,900
Peabody-Elbing	3,850	3,850
Eldorado-Towanda	13,200	13,200
Augusta-Fox-Bush	4,650	4,650
Rainbow Bend	2,800	2,850
Russell	3,450	3,500
Churchill	15,500	14,000
Others	29,600	29,700
Total Kansas	117,050	116,500
Increase		550

NORTH LOUISIANA

Homer	5,350	5,350
Haynesville	8,200	8,200
Caddo, light	10,050	9,900
Caddo, heavy	4,350	4,150
De Soto, Red River	3,950	4,000
Elm Grove	750	650
Bellevue	1,500	1,550
Cotton Valley	6,100	6,100
Urania	12,250	12,700
Total North Louisiana	52,500	52,600
Decrease		100

ARKANSAS

	Feb. 19	Feb. 12
El Dorado	6,050	6,100
Smackover, light	12,300	12,900
Smackover, heavy	102,100	102,550
Stephens	1,450	1,500
Nevada	1,800	1,850
Lisbon	5,050	5,200
Others	200	250
Total Arkansas	128,950	129,650
Decrease		700

TEXAS (OUTSIDE GULF COAST)

Panhandle District

Hutchinson County	114,450	116,600
Gray County	6,550	6,600
Carson County	8,100	8,150
Wheeler County	1,600	1,700
Others	50	50
Total Panhandle Dist.	130,750	133,100
Decrease		2,350

NORTH TEXAS

Bunkburnett	14,150	14,300
Electra	15,300	15,600
Iowa Park and K-M-A	4,900	4,950
Wilbarger	14,050	14,100
Archer County	32,100	32,950
Montague-Cooke	13,200	13,350
Others	1,050	1,050
Total North Texas	94,750	96,300
Decrease		1,550

WEST CENTRAL TEXAS

Stephens County	9,600	9,750
Eastland-Desdemona	5,650	5,800
Brown County	32,200	30,400
Coleman County	1,700	1,700
Callahan County	6,650	6,650
Shackelford County	13,100	13,400
Young County	8,550	8,850
Throckmorton County	4,000	4,000
Palo Pinto County	2,700	2,700
Jones County	3,500	4,150
Mitchell-Scurry Counties	2,550	2,250
Howard County	9,250	2,300
Reagan County	27,900	27,600
Crane-Upton Counties	46,050	39,300
Others	6,850	4,100
Total West Cent. Tex.	173,250	162,950
Increase		10,300

EAST CENTRAL TEXAS

	Feb. 19	Feb. 12
Mexia	11,200	11,700
Currie	750	750
Richland	1,200	1,400
Wortham	4,650	5,000
Corsicana-Powell	20,650	21,300
Nigger Creek	6,300	6,450
Total East Cent. Tex.	44,750	46,600
Decrease		1,850

SOUTHWEST TEXAS

Luling	18,750	18,400
Lytton Springs	2,250	2,500
Somerset	1,500	1,650
Laredo District	15,050	15,100
Piedras Pintas	100	200
Others	650	650
Total Southwest Texas	38,300	38,500
Decrease		200
Total, Texas—(Outside Gulf Coast)	481,800	477,450
Increase		4,350

GULF COAST

Coastal Texas

	Feb. 19	Feb. 12
West Columbia	10,050	10,400
Damon Mound	1,000	1,050
Big Creek	2,800	2,600
Boling	1,800	2,100
Blue Ridge	1,600	1,600
Pierce Junction	7,400	6,950
Humble	4,200	4,300
Goose Creek	7,250	8,050
South Liberty	3,650	4,450
Hull	17,150	16,900
Saratoga	1,250	1,250
Batson	1,750	1,650
Sour Lake	5,200	5,150
Spindletop	66,950	74,400
Orange County	5,100	5,200
Others	3,600	3,650
Total Coastal Texas	140,750	149,700
Decrease		8,950

COASTAL LOUISIANA

Vinton	5,600	5,700
Lockport	3,300	3,200
Evangeline	1,200	1,200
Edgerly	1,050	900
Others	600	600
Total Coastal Louisiana	11,750	11,600
Decrease		150
Total Gulf Coast	152,500	161,300
Decrease		8,800

ROCKY MOUNTAIN

Wyoming

	Feb. 19	Feb. 12
Salt Creek	41,450	43,250
Grass Creek	2,850	2,850
Elk Basin	900	950
Big Muddy	2,850	2,750
Lost Soldier	3,600	3,600
Rock River	3,050	2,950
Lance Creek	750	750
Teapot Dome	1,050	900
Others	1,700	1,500
Total Wyoming	58,200	59,500
Decrease		1,300

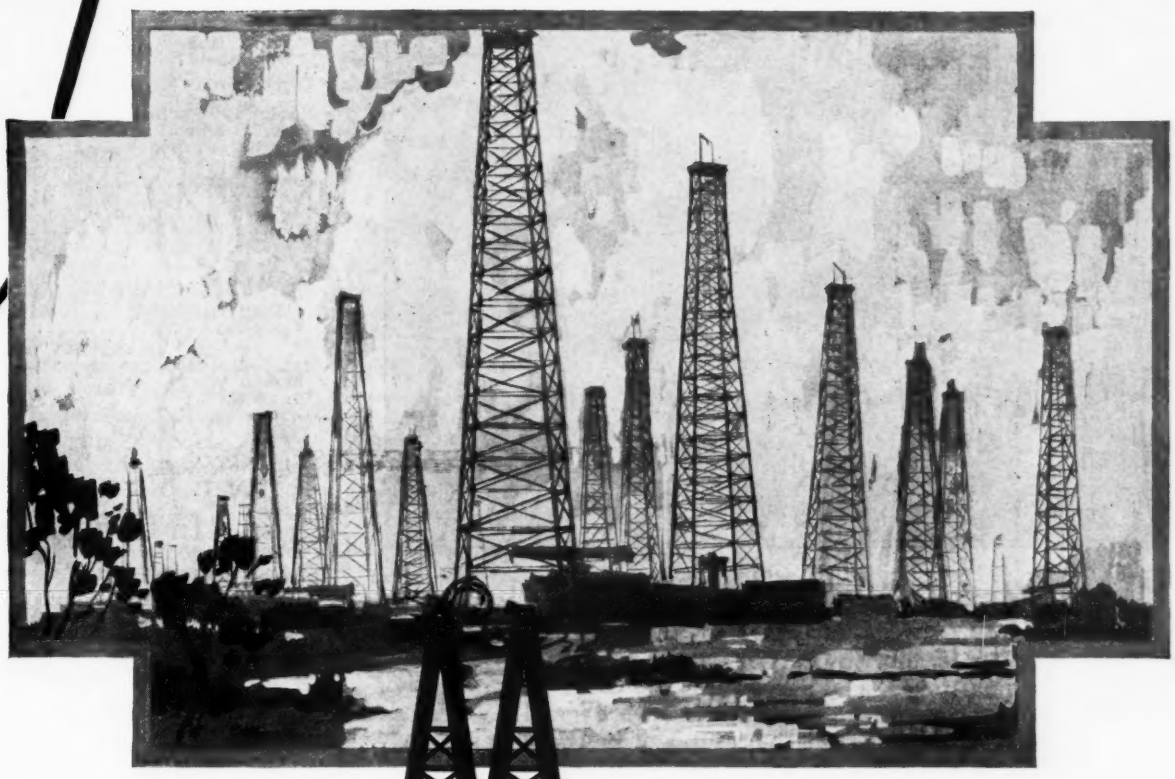
Montana

Cat Creek	2,400	2,400
Sunburst	11,000	10,000
Others	200	200
Total Montana	13,600	12,600
Increase		1,000

Colorado

Moffat (Craig)	2,650	2,650
Fort Collins	3,950	4,000
Florence	500	500

Greatest in Number



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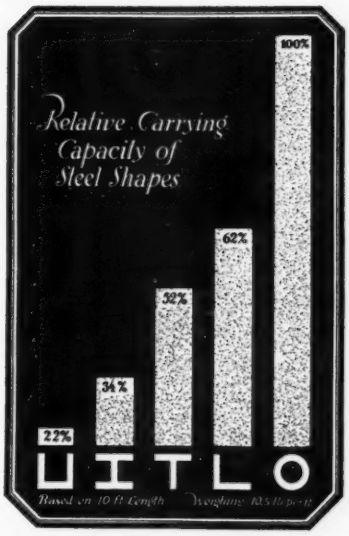

With the Moore you can always face ***uncertain*** drilling conditions with mathematical ***certainty.***

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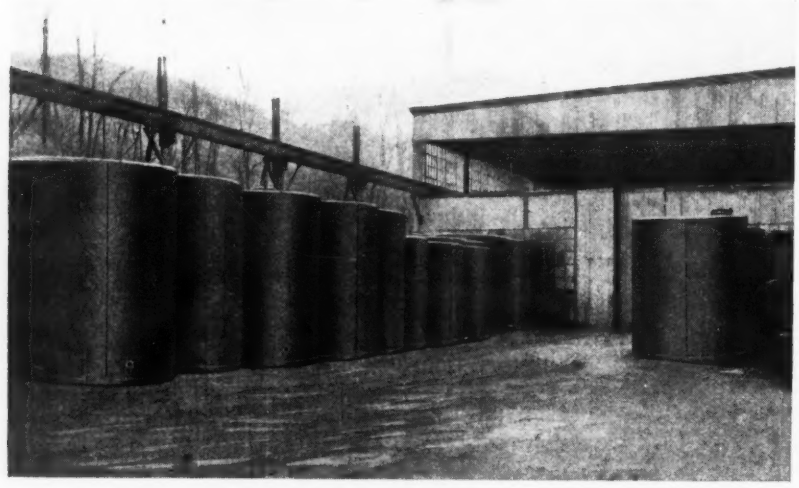

Oil Field Run Tanks of Rust Resisting Steel

Oil Field Run Tanks aren't objects of art. No one ever wrote an ode to their ravishing curves or set them near the office to admire. Of course not. That isn't what the big ugly cans are for. They're made for service—for storing oil—and that's all. But in giving service they suffer for their lack of beauty. You put them where they're needed—and that's usually out of sight—and forget their existence. When the original paint passes its prime, do you rush out with the pot and give them another coat? *You do not.*

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Not so Sistersville Run Tanks. They're now made of high copper content steel plates—a steel infinitely superior to any other in rust and corrosion resistance. Its uses will double or treble the life of a tank. It's the perfect material for the perfect tank that Sistersville makes.

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Sistersville Tank & Boiler Works
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WAX PLANT EQUIPMENT

Filter Presses — *Wax Moulding Presses*
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Wax Testing Presses — *Paraffine Wax Sweater Plants*
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Others	450	500
Total Colorado	7,550	7,650
Decrease		100
New Mexico		
Artesia	2,000	2,000
Hogback	900	850
Table Mesa	100	100
Rattlesnake	1,500	1,500
Total New Mexico	4,500	4,450
Increase		50
Total Rocky Mountain	83,850	84,200
Decrease		350
CALIFORNIA	**Feb. 19**	**Feb. 12**
Santa Fe Springs	45,500	45,500
Long Beach	91,000	92,000
Huntington Beach	82,500	84,500
Torrance	25,000	25,000
Dominguez	18,500	18,000
Rosecrans	11,500	12,000
Inglewood	38,500	38,000
Midway-Sunset	90,500	90,500
Ventura Avenue	51,000	50,000
	14,500	14,000
Others	171,500	172,000
Total California	640,000	641,500
Decrease		1,500
EASTERN		
(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	107,500	107,000
Increase		500

Storm Slows Up Work In California

LOS ANGELES, Feb. 21.—California was visited by one of the worst rain storms for several years this week, and as a result oil field operations have been slowed up most highways were impassable.

More than 100 derricks were wrecked in the fields in Kern county and many others were damaged. Drilling operations in practically every section of the state were delayed, and complete shutdowns were made in sections where the roads are poor.

In the Richfield district, the Union Oil lost an 80,000 barrel steel tank, when it collapsed, after high water had washed away a part of the foundation. The tank contained 70,000 barrels of refinable crude, and most of it was lost.

A protection levee in the Seal Beach field gave way and a large portion of the active area was flooded to the extent that most of the drilling crews were forced to leave their posts. The Associated's Bryant lease was flooded and drilling was suspended for two days. The same thing happened to Marland and other operators. As the result Seal Beach production was about 1000 barrels a day lower than it would have been.

At Long Beach, several gas and crude pipe lines were damaged where they crossed low places, which had become fast flowing streams. Quick repairs were made, and the loss is small.

Operations were seriously hindered in the Ventura Avenue field and some of the temporary bridges built by oil companies to reach their leases were damaged, and the company roads were badly cut. For two days Highways between Los Angeles and Ventura were closed.

High water and continued rains caused most of the damage in Southern California, with no damaging winds, but in Kern county, high winds played havoc with the oil fields, especially around Taft and Fellows.

Seminole is Greatest Experiment in Stimulated Production (Continued from page 32)

would be reduced from 246,015 barrels to 133,053 barrels, or 45.9 per cent.

Gas, rather than air, is being used to flow Seminole wells wherever possible. Air is used only in cases where sufficient gas either is not available or where use of residue gas is awaiting completion of gasoline plants. Such has been the haste to get the wells on lift that some companies have not bothered to meter the gas into or out of the wells and can only estimate the volume and pressure used to flow each well.

Some companies are using automatic volume controls for distribution of gas to wells. Others have made their plants so flexible by installing a large number of small compressors that they are able to switch the compressors around as they are needed until all wells have been adjusted satisfactorily. The general method of handling the wells is to flow them through tubing, injecting the gas between the tubing and casing.

It is probable that average gas pressure used in flowing wells is 225 pounds, and the average volume around 700,000 cubic feet per well per day. Average gas oil ratio is about 400 cu. ft. per barrel of oil. While Seminole has been noted since its discovery for low gas pressure and low gas-oil ratio, and does not have enough gas pressure at present to cause most of its wells to flow naturally, usually there is plenty of gas for gas-lift purposes. This gas, which is found with the oil, is high in gasoline content, and must be processed before it can be used in high-pressure compressors.

Use of air in lifts, especially where water is present in the well, causes rapid corrosion of tubing and casing and this has given some trouble at Seminole. However, it has been confined to only a few wells, and, as far as can be learned, has done no damage to the field in the way of eating out the casing to the extent that water was allowed to come into the hole from above.

Amerada Petroleum Corp., the first company in the field to install a gas-lift, now has 10 of its 12 completed wells flowing with this method. These 10 wells are making practically 100 per cent of the company's production in Seminole proper. Its properties consist of three 40-acre leases in the NE of 23-9-6. The wells are flowed by gas from a central station equipped with 21 Chicago Pneumatic compressors operated by electric motors. Pressures run from 190 pounds to 245 pounds, and volume from 570,000 to 745,000 cubic feet of gas per day, according to requirements of the various wells.

Bernsdall Oil Co., which has 15,713 barrels production in Seminole, from nine wells, has only two wells on gas-lift, making 3,163 barrels. Both these wells are on its Carter farm in 24-9-6. All the eight producing wells on this lease will be put on gas-lift as soon as construction now under way is completed. The company is using two Ingersoll-Rands and two Chicago Pneumatics driven by Waukesha motors as portable equipment. It is building a plant on the Carter which will consist of four 170-h.p. Cooper gas engines direct connected to Cooper compressing units. When this has been put into operation, the portable machinery will

Seminole Production by Companies, showing Total Production as Compared With Gas-Lift Production, Feb. 18, 1927

Company	Farm	S.T.R.	TOTAL No. Wells	TOTAL Prod.	ON GAS-LIFT No. Wells	ON GAS-LIFT Prod.
SEMINOLE						
Amerada	Fixico	23- 9-6	4	7,491	4	7,491
Amerada	Rentie	23- 9-6	4	5,151	4	5,151
Amerada	Killingsworth	23- 9-6	4	1,708	2	1,680
Total Amerada			12	14,350	10	14,322
Atlantic et al	Cudjo	35- 9-6	2	3,200	2	3,200
Barnsdall	Carter	24- 9-6	8	7,358	2	3,163
Barnsdall	Jones	34- 9-6	1	8,355	0	0
Total Barnsdall			9	15,713	2	3,163
Carter	B. Carter	24- 9-6	3	265	0	0
Carter	J. Carter	24- 9-6	4	480	0	0
Carter	F. Carter	23- 9-6	3	2,315	2	1,728
Carter	Cudjo	35- 9-6	2	6,285	1	4,215
Carter	Knapp	13- 9-6	3	1,100	0	0
Carter	Killingsworth	23- 9-6	5	6,985	3	6,470
Carter	Grisso	23- 9-6	6	7,925	2	7,900
Carter	Lukes	27- 9-6	2	2,920	1	2,910
Carter	Strothers	34- 9-6	1	4,970	1	4,970
Total Carter			29	33,245	10	28,193
Empire	Wilson	34- 9-6	1	878	1	8.8
Gypsy	Butler	35- 9-6	2	625	0	0
Gypsy	Carter	24- 9-6	8	3,585	3	3,450
Gypsy	Fixico	26- 9-6	7	427	0	0
Gypsy	Harjo	25- 9-6	1	1,770	1	1,770
Gypsy	Wolfe	26- 9-6	5	5,805	2	4,172
Total Gypsy			23	12,212	6	9,392
Independent	Fixico	26- 9-6	8	4,647	7	3,200
Independent	P. Fixico	23- 9-6	2	300	0	0
Independent	Jones	26- 9-6	4	6,325	2	3,000
Total Independent			14	11,272	9	6,200
I. T. I. O.	Bowlegs	26- 9-6	7	9,272	4	6,032
I. T. I. O.	Goodin	23- 9-6	3	650	0	0
I. T. I. O.	Harjo	23- 9-6	4	2,040	2	1,436
I. T. I. O.	James	24- 9-6	3	2,296	1	2,066
I. T. I. O.	Reed	24- 9-6	3	64	0	0
Total I. T. I. O.			20	14,322	7	9,534
Kingwood	Johnson	22- 9-6	1	75	0	0
Magnolia	Franks	25- 9-6	1	2,459	0	0
Mid-Continent	Rentie	14- 9-6	4	2,545	2	2,200
Mid-Continent	Tayeche	24- 9-6	3	3,480	3	3,480
Total Mid-Continent			7	6,025	5	5,680
Mid-Kansas	Johnson	25- 9-6	1	500	0	0
Philmack	Butler	35- 9-6	1	3,300	1	3,300
Prairie	Carter	10- 9-6	1	160	0	0
Prairie	Gross	25- 9-6	5	110	0	0
Prairie	Strothers	27- 9-6	4	11,954	2	6,200
Prairie	Spencer	13- 9-6	1	0	0	0
Total Prairie			11	12,224	2	6,200
Pure	Strothers	26- 9-6	13	28,314	11	22,800
Roxana	Harber	22- 9-6	1	1,325	0	0
Roxana	Lashley	22- 9-6	1	0	0	0
Sinclair	Carter	13- 9-6	2	60	0	0
Sinclair	Cudjo A	35- 9-6	5	17,700	4	12,000
Sinclair	Cudjo B	35- 9-6	3	14,535	1	3,900
Sinclair	Fixico	23- 9-6	2	1,425	0	0
Total Sinclair			12	33,720	5	15,900
Slick, T. B.	Franks	35- 9-6	5	26,940	0	0
Superior	Cudjo	35- 9-6	3	6,583	2	6,104
Tidal	Carter	24- 9-6	3	655	1	490
Tidal	Mahardy	24- 9-6	4	1,615	2	1,220
Tidal	Fixico	26- 9-6	5	10,080	5	10,080
Tidal	Harjo	23- 9-6	4	1,440	3	825
Tidal	Tayeche	25- 9-6	1	3,135	1	3,135
Total Tidal			17	16,925	12	15,750
Turman	Cudjo	35- 9-6	2	2,435	0	0
Total Seminole			184	246,015	85	150,616
SEARIGHT						
Carter	Davis	4- 9-6	1	2,620	0	0
Carter	Frazier	3- 9-6	1	2,960	0	0
Carter	Stewart	34-10-6	2	4,600	0	0
Total Carter			4	10,180	0	0
Gypsy	Cudjo	4- 9-6	1	700	0	0
Mid-Continent	Grayson	34-10-6	3	5,930	0	0
Prairie	Kinkade	33-10-6	6	10,465	1	1,120
Searight	Youngblood	33-10-6	2	445	1	370
Sinclair	Polly	3- 9-6	1	225	0	0
Twin State	Cudjo	4- 9-6	1	20	0	0
Total Searight			18	27,965	2	1,490
LIMA (8-6)						
I. T. I. O.	Livingston	15- 8-6	1	6,550	0	0
I. T. I. O.	Davis	13- 8-6	1	4,200	1	4,200
Total Lima			2	10,750	1	4,200
EARLSBORO						
Amerada	Anderson	15- 9-5	1	9,512	0	0
Gypsy	State	16- 9-5	1	6,765	0	0
Shallow sand			13	2,600		
Total Earlsboro			15	18,877	0	0
Grand Total			219	303,607	88	156,306

Average production per well, entire field ..... 1,386.3 barrels
Average production per well, gas-lift ..... 1,776.2 barrels
Average production of wells not on gas-lift ..... 1,124.4 barrels

Summary:—

Hunton lime	27 wells	production	6,500 bbls.
Earlsboro Sand	13 wells	production	2,600 bbls.
Wilcox Sand	179 wells	production	294,507 bbls.
	219		303,607

Completions in E.-C., Panhandle, N.-C. & W. Texas, Week Ending Feb. 19

EAST CENTRAL TEXAS

Brown County

Company	Well Farm	Location Survey	Depth	Initial Prod.
Humble	8-Hickman	Benson	1207–1224	30
Roxana	4-Newton	Mitchell	1256–2183	561
Valley	4-Teston	Curlong	1192–1217	125
Williamson et al	11-Keller	Mitchell	1144–1160	8
Amerada	18-Fry	Stubblefield	1305–1320	1021
Wentz	5-Shore	Betts	1307–1325	400
Gibson	4-White	Vernon	1227–1243	40
Huber et al	2-Kuteman	Harris	T.D. 385	Dry
Humble	3-Hodnot	Harris	T.D.1237	Dry
De Busk	2-DeBusk	Travis	T.D.1375	Dry
Holeron et al	3-Eddington	Millican	T.D.1548	Dry
Sorrels et al	1-Marton	H&TB	T.D.1602	Dry
Sawyer et al	5-White	Vernon	T.D.1785	Dry
McCullough	1-Newton	Honeycutt	T.D.1735	Dry
Sorrels et al	1-Weedon	Donald	T.D.1608	Dry
Morris	2-Smith	Neil	T.D.1200	Dry

Callahan County

Adams et al	1-Windham	SP	T.D.3590	Dry

Coleman County

Magnolia	17-Morris	Davidson	T.D.3665	Dry
Shimmell et al	1-Richardson	Pease	T.D.1659	Dry

Eastland County

Vacuum	1-Compton	H&TC	T.D.1834	Dry

Falls County

High Bank	1-Peacock	Pierson	T.D.3052	Dry

Jack County

Wolf	1-Wilson	S. P.	T.D. 834	Dry
Crump et al	1-Bailey	Little	T.D.2572	Dry
Buttram	4-Cullers	Chairs	2095–2100	75

Jones County

Gibson et al	1-Wright	TP	T.D.2510	Dry

Limestone County

Cayton	1-Thornton	Boyd	T.D.3124	Dry
Magnolia	4-Stroud	Varella	2784 T.D.	Dry

Navarro County

Texas	1-Pruitt	Carpenter	T.D.1387	Dry

Palo Pinto County

Tex-Pac	1-Feel	Court	T.D.3054	Dry
Tex-Pac	26-Dykes		T.D.3409	Dry
Dalton et al	1-Adgen	Mitchell	1410–1422	5
Denver	1-Scudder	TEL	T.D. 715	Dry
Dalton	1-Dalton	Dayton	T.D.4205	Dry
Singleton et al	1-Smith	SP	T.D.3240	Dry
Dalton et al	1-Cunningham	Hasttelow	T.D.1775	Dry
Nelson	1-Owden	TP	T.D.3240	Dry

Shackelford County

Magnolia	2-Midriff	LSL	T.D.2625	Dry
Rosier-Pendleton	27-Cook	ET	T.D.1348	Dry
Rosier-Pendleton	29-Cook	ET	T.D.1356	Dry
Rosier-Pendleton	22-Cook	ET	1226–1258	800
Rosier-Pendleton	23-Cook	ET	1155–1178	30
Rosier-Pendleton	29-Cook	ET	1195–1206	350
Rosier-Pendleton	31-Cook	ET	1309–1334	400
Rosier-Pendleton	33-Cook	ET	1139–1354	75
Rosier-Pendleton	6-Cook	ET	1129–1143	75
Rosier-Pendleton	11-Cook	ET	1126–1143	30
Rosier-Pendleton	13-Cook	ET	1132–1149	35
Rosier-Pendleton	4-Cook	ET	1153–1160	75
Rosier-Pendleton	4-Cook	ET	1116–1132	150
Rosier-Pendleton	24-Cook	ET	1325–1345	40
Rosier-Pendleton	2-Moberly	TP	1265–1289	100

Stephens County

Urban et al	1-Webb	Lehman	3785	Dry
Barkley-Conway	2-Bradford	TP	T.D.2046	Dry
Humble	1-Cockrell	TP	T.D.4013	Dry
Humble	1-Hamilton	TP	T.D.4060	Dry
Edison et al	4-Post	TP	1933–1935	100

Throckmorton County

Humble	1-Bowman	TEL	868– 871	1½M
Brown	1-Reynolds	BBB&C	T.D.2012	Dry
Texon et al	1-Reynolds	BBB&C	T.D.2871	Dry
Hoffer	2-Matthews	Reifield	T.D.1570	Dry

Young County

Company	Well Farm	Location Survey	Depth	Initial Prod.
Jacob	1-Hartford	Kutch	2321–2332	18
Coons et al	1-Eddleman	TEL	T.D.2233	25
Hubbard	1-Hung	TEL	T.D.2825	Dry
Whitehead et al	2-Belknap	TEL	T.D.4650	Dry
Hazer et al	1-Donnelly	TEL	T.D.3100	Dry

PANHANDLE DISTRICT

Gray County

Humble	5-Merton	I&GN	3145–3207	25
Gulf	7-Worley	I&GN	3030–3070	100

Hutchinson County

Phillips	2-Christian	Christian	2884–2943	375
Sinclair	1-Williams	H&TC	3114–3120	67
Empire	4-Johnson	A&B	2929–2972	58
Mid-West	1-Whittenberg	M&C	2870–3030	120
Black Diamond	1-Smith	M&C	2660–2853	15
Phillips	2-Florence	Whitely	2880–2912	200
Minnehoma et al	2-Johnson	A&B	2960–3010	920
Middleton et al	1-Kingsland	M&C	2727–2885	200

Potter County

Amarillo	1-Fuqua	JAD	T.D.4400	Dry

Wheeler County

Laycock et al	1-Feel	H&GN	2228–2263	15M

NORTH CENTRAL TEXAS

Archer County

Burns	2-Turberville	Carson	1438–1461	125
Burns	3-Turberville	Carson	1436–1460	190
Simms-Burns	6-Turberville	Carson	1451–1472	140
Rowe	3-Jentsch	Harris	1190–1195	10
Consolidated	1-Ward	TEL	1018–1021	55
Perkins et al	1-Perkins	ATNC	T.D.1640	Dry
Mear et al	1-Wilson	ATNC	T.D.1601	Dry
Tidal	2-Turberville	Carson	T.D.1499	Dry
Humble	1-Hutchinson	ATNC	T.D.1451	Dry
Christie et al	1-Fish	Harris	T.D.1505	Dry
Maddix et al	1-Love	SP	T.D.1404	Dry
Gulf	1-Meade	Meade	T.D.1507	Dry
Lee Wilson	1-Bohoe	Meade	T.D.1500	Dry

Cooke County

Sun	9-Hyman	Ross	1184–1189	90
Eggerest et al	1-Marshall	Chenoweth	T.D.2501	Dry
Murchison-Fain	1-Fields	BBB&C	T.D.2501	Dry
Jeffers et al	1-Williams	Sligland	T.D.1761	Dry
Skinner et al	1-Huston	Foreman	T.D.1793	Dry

King County

Hoffer	1-Patten	Thompson	T.D.1840	Dry
Patterson	1-Patten	Thompson	T.D.1140	Dry

Montague County

Humble	13-Maddox	Thompson	862– 873	35
Continental	12-Maddox	Thompson	927– 954	40
Continental	12-Howard	Chambliss	988–1006	48
Continental	20-Howard	Chambliss	1340–1375	17
Gulf	2-Jones	Donoho	T.D. 650	Dry

Wilbarger County

Phillips	14-Waggoner	H&TC	T.D.1867	20
Phillips	5-Waggoner	H&TC	1854–1858	15
Humble	18-Waggoner	H&TC	T.D.2377	235

Wise County

Little	1-Houston	Fall	T.D.2500	Dry

WEST TEXAS

Crane County

Texas	18-King	GCSD	2327–2372	97
Llano	1-Hampton	Bates	T.D.3197	Dry

Howard County

Magnolia	6-Chalk	W&NW	1638–1649	75
Marland	2-Chalk	W&NW	1546–1553	1546

Reagan County

Texon	64-Univ.	Univ.	2940–2947	175
Texon	65-Univ.	Univ.	2968–2987	375

Terrell County

Sun	1-Scott	TC	T.D.4020	Dry

Upton County

Gulf	1-Hughes	Teer	2048–2165	22
Gulf	3-Hughes	Teer	2096–2130	150
Marland	4-Powell	King	2462–2465	165
Sun	2-Baker	Denton	2235–2270	125
Texas	16-King	Denton	2020–2100	200
Gulf	2-Estep	MK&T	2378–2380	75
Roxana	6-Bowen	GCSF	2032-T.D.	700

be used on other properties. The permanent plant will be in operation in two weeks.

On the Barnsdall Jones lease in 34-9-6, where the company has one well making 8,355 barrels natural, two Ingersoll-Rand-Waukesha outfits have been installed and are ready for use if the well falters. Material has been ordered and some of it is on the ground for a two-unit Cooper plant for this property, similar to the one building on the Carter. This company is selling gas to the Empire Gasoline Co., and is using residue gas in its gas-lift operations. It will build a combination gasoline plant and gas-lift plant at Earlsboro, but has not started work on it.

Prairie Building Two

Prairie Oil & Gas Co. is building two gas-lift plants, one on its Strothers farm, in 27-9-6, and the other on the Kinkade lease, in the Searight field. Each plant will consist of three 185-h.p. Worthington compressors driven by Superior gas engines. The Prairie has three wells on gas-lift at present, two at Seminole and one at Searight. Ingersoll-Rand portables with gasoline engine drive are being used.

Independent Oil & Gas Co., which drilled the Wilcox sand discovery well on its Tolof Fixico farm in 26-9-6, has seven wells on gas-lift on this property, making 3,200 barrels out of total of 4,647 barrels. This installation consists of two Cooper compressors and engines, 120-h.p., direct driven, and two Chicago Pneumatic compressors driven by 120-h.p. Waukesha engines. Total volume into the seven wells daily is 3,500,000

Dallas **TULSA** **Los Angeles**

Completions in Oklahoma and Kansas, Week Ending Feb. 19

OKLAHOMA

Caddo County

Company	Well No.	Location	Depth	Initial Prod.
Briscoe-Hall	1	SWc SE SE 2-5-9W	1936–2423	60

Carter County

Company	Well No.	Location	Depth	Initial Prod.
Humble	7	SEc SW SW 18-1-3W	2609–2631	1145
Magnolia	3	SEc SW 18-1-3W	2646–2664	85
Westheimer	1	SWc NW SW 18-1-3W	2660–2671	
Humble	2	NWc SW SW 2-2-3W	2578–2593	125
Schermerhorn	1	SWc NW 2-2-3W	3193–3198	50
Gypsy	4	NEc SW NE	1885–2450	145

Coal County

Company	Well No.	Location	Depth	Initial Prod.
Skirvin	1	NWc SE 34-2-9E	T.D.2240	Dry

Creek County

Company	Well No.	Location	Depth	Initial Prod.
Magnolia	1	SWc NE SW 5-18-7E	2450–2516	5
Magnolia	24	SEc NE NW NW 17-18-7	2330–2440	200
Alvard-West	3	CEL NE SW 14-17-8	3174–3194	105
Lee	1	SWc NW NE NW 2-19-9	1215–1236	25
Gypsy	8	SWc SE NW 1-18-11	2070–2097	25
Riverland	8	SEc SW NW 1-18-11	2047–2059	80
Taylor et al	1	SWc NE 31-18-11	1383–1400	15
Savoy et al	1	SEc NE NE 6-18-12	2257–2276	100
Savoy et al	1	SWc SE NE NE 6-18-12	2269–2273	2860
Sunray et al	1	SEc NE NE 6-18-12	2205–2217	25
Sunray et al	13	SEc NE SE NW 6-18-12	2005–2019	75
Sorenson et al	1	NWc NE 9-17-11	1717–1752 OWD	20
Ireland	3	SWc NE 16-17-11	1790–1827	20
Cumberland	2	NWc SW SW 18-17-11	1849–1876	25
Gled	7	SEc NE SW 13-19-8	T.D.3057	Dry
Greives et al	2	SWc NW NE 24-19-8	T.D.3420	Dry
Magnolia	2	NWc SW NW 26-17-8	T.D.3785	Dry
Riverland	1	SWc NE SW 3-18-11	T.D.2487	Dry
Whitten-Wilcox	3	SWc SE NW 11-17-10	T.D.2176	Dry
Buckholtz et al	1	NWc NE SW 27-15-10	T.D.3200	Dry
Plymouth	1	SWc SE NE 28-15-10	T.D.3204	Dry

Grady County

Company	Well No.	Location	Depth	Initial Prod.
Frates et al	1	SEc 36-4-6W	1799–1806	3M
Hamon-Cox	3	NEc SW NW 16-3-5W	1762–1810	90
Ray-Cox	1	SWc SE NW 16-3-5W	1744–1755	70
Carter	1	SEc NE NE 17-3-5W	1924–1929	31M
Carter	3	SEc SW SW 22-3-5W	1710–1719	100
Carter	4	NEc NW SW 27-3-5W	1760–1790	75
Carter	1	SEc NW SE 27-3-5W	1432–1437	30
Prairie	1	SEc SE NW 21-3-5W	2048–2051	40
Badgett et al	1	SEc NW SW 15-5-7W	T.D.2300	Dry
Bay	1	SWc NW NE 35-3-5W	T.D.2490	Dry

Kay County

Company	Well No.	Location	Depth	Initial Prod.
Vernon	5	NWc SW SE 17-29-1E	2322–2335	140
Wentz	2	NWc NE NW NE 8-28-1W	3535–3560	222
Texas	1	C SW NW 9-27-1W	3426–3443	110
Braman	1	SEc SW SE SW 5-28-1W	3350–3389 OWD	82
Texas	2	SWc SE NE 20-29-1W	T.D.2783	Dry

Muskogee County

Company	Well No.	Location	Depth	Initial Prod.
Givens et al	6	C NE SE 6-14-18E	1265–1296	30
Foltz et al	1	NEc SW 32-15-18E	T.D.1925	Dry
Herbert	1	SWc 17-13-19	T.D.1503	Dry

Okfuskee County

Company	Well No.	Location	Depth	Initial Prod.
Johnson	1	NEc SE SE 25-12-9E	T.D 3318	Dry
Independent	2	NWc SW NE 22-12-11	2481–2485	6½M
Josey	17	CSL SW NW 33-12-11	3610–3630	350
Cromwell	1	CWL SW SE 8-12-7	2804–2814	30
Mid-Kans	1	NWc NE 17-12-7	T.D.4548	Dry

Okmulgee County

Company	Well No.	Location	Depth	Initial Prod.
Hammon	1	SWc NE SW 21-15-12	2177–2217	4M
Gladys Belle	6	CSL N½ SW NW 6-12-12	2437–2445	12M
Moffett et al	7	CSL SW SE 6-11-12	2345–2350	15
Pine	4	NWc NE NE 9-15-14	1544–1554	10
Mussellen	5	CEL NE NW 19-14-15	1270–1300	40
Red Bank	1	SEc NE SW 20-16-12	T.D.2792	Dry
Kirshner et al	1	NEc SE 21-16-14	T.D.2190	Dry
Bright	10	CWL SE NW 25-13-14	T.D.1959	Dry

Osage County—Burbank

Company	Well No.	Location	Depth	Initial Prod.
Phillips	3	SWc SE SE 1-27-5E	2935–2968	80
Texas	1	SEc NE 3-27-5	2935–2986	25
Phillips	7	NWc SE NW 7-27-6	2940–2994	800
Kewanee	4	SWc SE SW 34-27-6	2774–2830	30
Marland et al	3	SEc NE NW 3-26-6	2806–2812	13
Brown	1	SEc NW 20-26-6	2940–2990	15

Osage County

Company	Well No.	Location	Depth	Initial Prod.
Gillespie	10	CEL NE 5-20-12	1342–1379	30
Continental	18	SWc NW 28-20-12	1168–1212	5

Pawnee County

Company	Well No.	Location	Depth	Initial Prod.
Devonian	1	NEc SW 35-22-6	2668–2683	20
Ark. Fuel	2	SWc NW NE 21-22-7	3035–3045	20
Minnehoma	6	CSL SW SW 13-21-7	2700–2701	400
Steen et al	1	SEc SW SW 9-20-7	2625–2661	20
Wasson-West	1	SEc NE 19-21-7	T.D.3050	Dry
Superior	2	C SE NE 9-20-7E	T.D.2628	Dry
McNamara	1	NEc SE SE 22-20-8	T.D.3199	Dry
Prairie	6	SEc NE SW 15-20-6	3114–3126	40

Pontotoc County

Company	Well No.	Location	Depth	Initial Prod.
Homaokla	1	NWc SW SW 16-5-8E	2505–2511	135

Seminole County

Company	Well No.	Location	Depth	Initial Prod.
Magnolia	2	SEc NW SE 10-9-5E	3551–3567	520
Amerada	2	SWc NW NW 15-9-5	4257–4272	9320
Carter	2	SEc SW 14-9-6	4015–4040	3395
Carter	4	SEc NE SW 23-9-6	4270–4345	150
Sinclair	2	SWc NE NW 35-9-6	3967–4007	3420
Sinclair	4	SWc SE NW NW 35-9-6	4037–4068	1090
Independent	2	SEc SW SW 23-9-6	4160–4167	50
I. T. I. O	4	NEc SE SE 23-9-6	4124-T.D.	300
Gypsy	6	SEc NW NW 24-9-6	4130–4163	100
Mid-Cont	4	SEc SW 24-9-6	4164–4179	415
Mid-Cont	5	NEc SE SW 24-9-6	4076–4115	200
Indep-Garland	7	SEc NE 26-9-6	4228–4238	350
Carter	1	NWc SW 35-9-6	4040–4132	2185
Sinclair	2	NWc NE NW NW 35-9-6	4020–4045	5068
Slick	7	NEc SW NE 35-9-6	4098–4120	2000
Turman	1	SWc NW 35-9-6	4090–4123	1740
Turman	3	NWc SW NW 35-9-6	4044–4082	3300
Sinclair	1	NWc 17-9-7	4297–4340	84
Prairie	2	NWc W½ NW 25-9-6	4009–4040	200
Prairie	4	SEc NE SE 27-9-6	3965–3991	250
Prairie	5	NEc NW SE 33-10-6	T.D.4372	Dry
McCullough	1	NEc NW NW 18-9-6	T.D.4342	Dry
Mid-Continent	2	SEc SW 7-9-8	T.D.4403	Dry
Magnolia	1	NEc SE NW 28-8-7	T.D.4360	Dry
Carter et al	1	SEc NE NW 30-7-8	T.D.4319	Dry

Stephens County

Company	Well No.	Location	Depth	Initial Prod.
Margay	4	NWc SW SW 7-1-8W	T.D.2760	Dry
Ellis	7	CSL SE SE 19-1-8	T.D.2262	Dry
Carter	2	NWc NE 2-2-5W	T.D.1487	32
Gamble et al	1	SWc SE SE 25-1-9W	2154–2175	125

Tulsa County

Company	Well No.	Location	Depth	Initial Prod.
Tidal	1	NWc SE 12-16-13	2362–2373 OWD	10
McCarthy et al	1	NEc SW NW 15-19-13	T.D.2015	Dry

Wagoner County

Company	Well No.	Location	Depth	Initial Prod.
Severada et al	4	SWc NW NW 25-17-16	1290–1310	30
Simpson	1	SEc 11-19-16	T.D. 520	Dry
Mills	1	NWc 18-19-17	T.D. 572	Dry
Cooper	1	SEc 4-18-16	T.D.1145	Dry
Kanola	11	4-16-15	T.D.1137	Dry
Ray Star	1	SWc SE 3-16-14	T.D.2411	Dry

KANSAS

Butler County

Company	Well No.	Location	Depth	Initial Prod.
Prairie	1	NWc SW SE 35-29-6	T.D.3188	Dry
Lackawanna	1	C S½ SE SE 35-25-4E	2387–2417	125
Safford et al	9	NEc SE NE SE 26-27-4	2520–2532	30
Mid-Kansas	5	SWc SE SW 3-28-6E	3026–3036	55
Magnolia	1	NEc SE SE 4-28-6	3069–3076	20
Sheldon et al	1	NWc 21-25-8	T.D.2733	Dry
Phillips	1	SWc SE SW 8-27-6	T.D.3161	Dry

Chase County

Company	Well No.	Location	Depth	Initial Prod.
Preston et al	3	C NE SE 30-18-7	1186–1200	2½M

Chautauqua County

Company	Well No.	Location	Depth	Initial Prod.
Prairie	8	CSL SW SW 27-33-11		20

Cowley County

Company	Well No.	Location	Depth	Initial Prod.
Doric	1	NWc SE NW 17-33-7	T.D.2732	10
Branson et al	1	SEc SW SW 7-30-6	T.D.2925	Dry
Miss. Valley	1	SEc SW 6-32-3	T.D.3503	Dry
Slick	2	NWc SW NW 20-32-3	T.D.2700	Dry

Edwards County

Company	Well No.	Location	Depth	Initial Prod.
Edwards Cy	1	NEc SE SE 7-23-19W	T.D.4653	Dry

Elk County

Company	Well No.	Location	Depth	Initial Prod.
Kans. Cent	3	C NW NE 21-31-9	T.D.1504	Dry
Pure	15	SWc NW SE 14-31-10	1628–1644	1000
Pure	16	SWc NW NW SE 14-31-10	1627–1648	325

Greenwood County

Company	Well No.	Location	Depth	Initial Prod.
Superior	9	C SE NE 19-22-10	2273–2340	75
Darby et al	1	NWc SW 10-22-12	1790–1821	125
Roth et al	1	SWc NW 10-23-10	2005–2012	15
Empire	3	NWc NE NW 21-23-11	1894–1960	350
Simmons et al	5	SEc NW SW 26-23-11	1880–1908	175
Haverhill	16	SEc NW SE SE 4-23-13	1584–1614	40
Simmons et al	1	NEc NW NW 33-22-13	1909	Dry
Roth et al	2	C S½ S½ NW 19-23-10	T.D.2325	Dry
Marland	3	NEc SE NW 7-23-11	T.D.2087	Dry
International	1	SEc SW NW 7-26-10	T.D.2531	Dry
Simmons et al	6	NWc NE NW 18-22-11	T.D.2120	25

Lyon County

Company	Well No.	Location	Depth	Initial Prod.
Transcontinental	9	NWc 31-21-10E	2169–2202	35

Marion County

Company	Well No.	Location	Depth	Initial Prod.
Nicolls et al	1	C NE SE 32-18-4	T.D.2682	Dry
Propp et al	1	NEc SE NW 20-19-4	T.D.2696	Dry
Sheedy et al	1	SW NW SE 13-21-4	T.D.2363	Dry

Sumner County

Company	Well No.	Location	Depth	Initial Prod.
Philmac	1	SWc SE 23-30-2E	T.D.3744	Dry

cubic feet at average pressure of 200 pounds.

On the L. Jones lease, owned by the Independent and Interocean, two wells out of four are on gas, producing 3,000 barrels out of 6,325 barrels total. This plant has five Ingersoll-Rand compressors direct connected to 65-h.p. gas engines, and four Chicago Pneumatic driven by Waukesha engines. The company is installing four more Chicago Pneumatics. Total volume is 1,500,000 cubic feet of gas daily, at pressures running from 150 to 300 pounds.

Mid-Continent, 3 Plants

Mid-Continent Petroleum Corp. has three gas-lift plants, one on the Grayson, in Searight, and one each on the Rentie and Tayeche leases at Seminole. Five out of seven wells on the two Seminole leases are on gas-lift, and are making 5,680 barrels out of 6,025 barrels total. All wells on these properties will be on gas as soon as construction has been completed.

On the Rentie, the company has three Ingersoll Rand 16x5x20 compressors,

In a year and a half
STEEL DECKS over Panhandle
high sulphur crude are gone—due to

Corrosion

Scale dropping from under side of steel decks sets up galvanic action and BOTTOMS start for the scrap heap.

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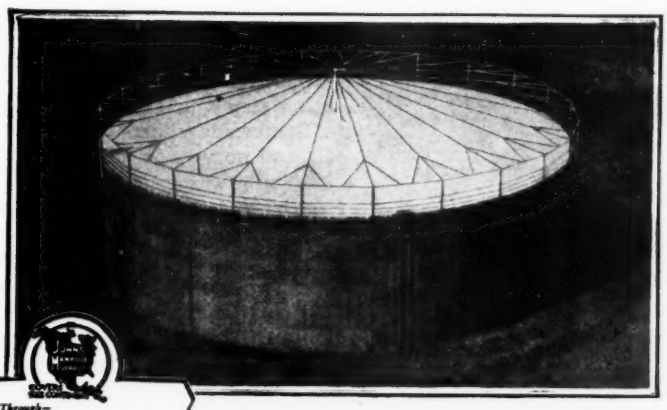

Over one hundred tanks in the West Texas Field covered by Johns-Manville in the last four months.

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Oil Industry Department

belt driven by 180-h.p. Bessemer gas engines. On the Tayeche there is a two-unit plant. One the Grayson, three wells are making 5,930 barrels natural and none is on gas-lift. A two-unit compressor plant has been built and is ready for operation when the time comes.

CARTER OIL CO., whose total production of nearly 45,000 barrels a day in the Seminole district puts it far in the lead, has 10 wells on gas-lift out of a total of 31 producers. These wells are making 28,328 barrels daily. Thus one-third of its wells are producing 63 per cent of its total output. Average production of its gas-lift wells is 2,832.8 barrels.

Well No.	Farm	Prod.	Equipment
1	F. Carter	1,110	
2	F. Carter	618	2-Bessemers
2	R. Cudjo	4,215	
2	Grisso	6,810	2-Bessemers
6	Grisso	1,285	1-Bessemer
1	G. F. Killingsworth	2,015	2-Bessemers
2	G. F. Killingsworth	1,940	
3	M. E. Killingsworth	2,515	4-Ingersoll-Rand
1	Lukes	2,910	1-Bessemer
1	Strother	4,910	4-Ingersoll-Rand
10 wells		28,328	

The Carter's No. 2 Grisso is probably the largest gas-lift well in the U. S. at this time. This well was flowing 7,000 barrels a day natural last week, and suddenly went dead. It was placed immediately on gas-lift and flowed 5,670 barrels in the ensuing 22 hours. The No. 1 G. F. Killingsworth, shown in the table, is flowing on air, delivered by a 13½ x 6¼ x 20 Bessemer compressor through a pipe line one mile in length.

Pure Oil Co., which has one of the best properties in the field in its Strothers 160-acre lease, the SW¼ of 26-9-6, has total production of 28,314 barrels from 13 wells. Of these, 11 wells are on gas-lift and are flowing 22,800 barrels daily.

THIS company has a large central compressor station and central control, the gas being distributed to the wells at pressure and volume desired by Foxboro and Emco automatic controls, the latter manufactured by the Equitable Meter Co. The station is equipped with six 175-h.p. Type 10 Bessemer gas engines direct connected to Bessemer compressors, four Ingersoll-Rand portables driven by 125-h.p. Waukesha motors, six Chicago Pneumatic portables, with 100-h.p. Waukesha motors, five 100-h.p. oil engines belt driven to Ingersoll-Rand compressors. There is also a battery of steam compressors, consisting of four 300-ft. Ingersoll-Rand direct connected steam engines, one 500-ft. Ingersoll-Rand direct connected steam engine, and one 500-ft. Laidlaw cross compound steam engine.

On this lease there is a Newton semi-portable gasoline plant which handles part of the gas produced and has made as high as 40,000 gallons of gasoline daily. This plant has one 175-h.p. and two 80-h.p. Bessemer direct connected compressors. The company is using air on one or two wells but will put them on gas as soon as they can be hooked up to the main plant. It is using from 160 to 270 pounds pressure on gas-lift, with average volume about 700,000 cubic feet per well per day.

Tidal Oil Co. has 12 wells on air or gas-lift out of a total of 17, and they are flowing 15,750 barrels daily, as compared with total production of 16,925 barrels. This company's production is on five separate properties and a compressor plant has been built on each. The company is running from 750,000 to one million cubic feet of gas per well per day, at average pressure of 250 pounds. The Tayeche well in 25-9-6 is flowing on air, and the Fixico, in 26-9-6, with five wells, is being switched over from gas to air. The company is selling its gas to the Carter Oil Co., and will put these wells back on gas as soon as sufficient residue gas is available.

On the Mahardy lease, the plant consists of 12 Chicago Pneumatic small compressors belt driven by 75-h.p. electric motors, and two 170-h.p. Cooper direct connected complete unit. On the Fixico, there are two 200-h.p. Clark units and three Worthington compressors, operated by 75-h.p. electric motors, all in one central plant. In No. 2 plant on this lease, there are six Chicago Pneumatics and two Ingersoll-Rands, driven by 75-h.p. electric motors. On the Tayeche, three Worthington compressors are installed, driven by 75-h.p. motors.

THE Tidal is equipping its Seminole properties to make the fullest use of electricity. In addition to using electric motors to run its compressors, each well is electrically equipped with motor for pulling tubing or other work, and the wells will be pumped with electricity when the time comes that the gas-lift no longer functions satisfactorily.

Rains Hamper Movements In California

LOS ANGELES, Feb. 19

THE state, from one end to the other, the desert regions included, was in the grip of the worst rain storm the state had known for several years. Practically every important highway of the state was closed to general travel at different points for three to four days. Detours could be made in most instances to reach desired points; but to say that automobile travel was cut down at least half during the week would be making a conservative statement.

Very little stuff of any character moved within the state. The cargo movement out of Los Angeles harbor was hindered only slightly, causing some delay, but of slight importance.

There is a slightly weaker condition in natural gasoline markets due to increased production, but so far quotations stand. It is feared that prices will weaken in the next few weeks, as the amount of natural gasoline for spot sales increase.

Gasoline, fuel oil and other products in the last week held to old quotations, with little happening to give an insight into what real sales would bring forth. The tanker situation is growing worse. The asking charter price is stiffer than ever, but bottoms can hardly be had even at advanced prices. The asking price now ranges from $1.25 to $1.50 a barrel through Canal to East Coast points.

IT has been suggested that the Shipping Board could help the situation considerably by permitting the use of a number of tankers now lying idle, and held for emergency purposes. Ten or 15 tankers could be placed into active service on two weeks' notice. And such a step would be of great assistance to California refiners with products to sell, and no way to move it.

Sells Oil Over London-U. S. Telephone

CLEVELAND, Feb. 21.—Probably the first order of oil to be bought over trans-Atlantic telephone, was received on Jan. 29 by the Freedom Oil Works Co., Freedom, Pa., from F. Chiesman & Co., Ltd., London. The call was completed quickly and the conversation was carried on in natural tones.

R. B. McKee, refinery sales manager of the Freedom company was the party at this end and Mr. Cornish, of the Chiesman company was the party over there.

Eastern and Central Kentucky Markets

ASHLAND & LEXINGTON, Feb. 21.—In eastern Kentucky demand for all products except kerosene has slowed down in the last week. Gasoline prices are off ¼ cent.

Gasoline in central Kentucky refining district was in fair demand last week. Price is down ¼c. Kerosene is steady. Gas and fuel oils are unchanged.

Quotations on Feb. 21 were:

	Eastern	Central
58-60 gasoline	11¼	10½
60-62 gasoline	11¾	
64-66 gasoline	12	
68-70 gasoline	13	
41-43 w.w kerosene	8½	8¼
34-36 gas oil	6⅛	6
24-26 fuel oil	4½	
23-25 fuel oil		5
14-16 fuel oil	4¼	

Well's Natural Pressure Put to Work In New Flowing Device

By A. F. Hinton
N. P. N. Staff Writer

TULSA, Feb. 21

A NEW flowing device now in use in the Weleetka and Wewoka fields is designed to use a well's own natural pressure in prolonging its flowing life and to make unnecessary the use of auxiliary pressure applied from surface equipment. It operates on the principle of applying back pressure to the critical point at which the well will make almost its normal production under open flow conditions, thus building up the operating pressure and causing the well to flow under its own power.

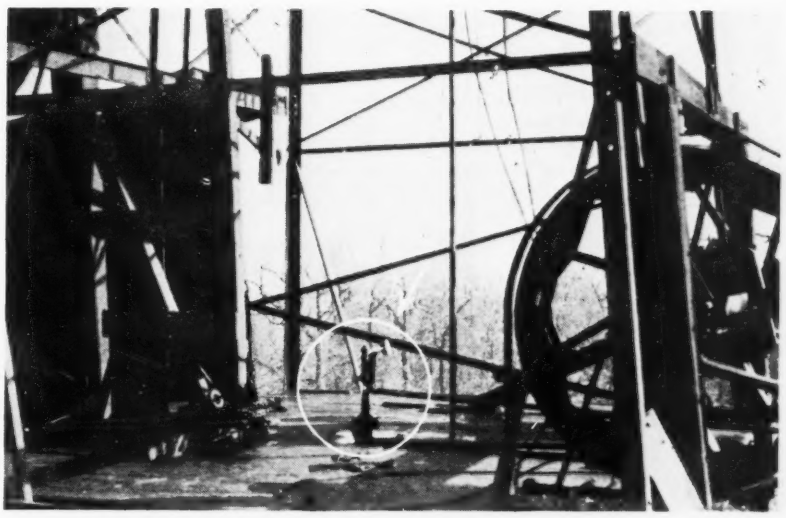
The device is placed in a string of tubing and set between two joints, usually a little below the well's constant fluid level. Gas is jetted in through minute openings. Below the device, and toward bottom of hole oil inlets into the tubing are provided. Annular space between the casing and tubing is closed at the casinghead, providing a gas chamber above the fluid. The device has a removable choker and removable gas inlets, which may be changed in number and size to conform to requirements of each well.

Wells in which this device has been tried out over a period of months show that pressure has been restored to the sand to the extent that the well's operating pressure has been increased threefold, furnishing ample pressure to cause a steady flow from wells that previously were pumping or swabbing at much greater expense. In wells so depleted that they will not build up sufficient operating pressure for the device to perform satisfactorily, auxiliary pressure may be applied as an adjunct to use on the device.

Nature of flow brought about by this device differs from a gas-lift flow in that it takes the form of alternating "pistons" of oil and gas, as compared with the bubble-lightened column characteristic of the latter. It is claimed by the inventor that the piston flow generated by his device is more efficient than that of an air- or gas-lift, for reasons that will be gone into later in this article.

THE new device is now being used successfully in a well that has had an interesting history in the deep portion of the Wewoka field, Magnolia Petroleum Co. No. 3 Franz, in 32-8-8. This well has produced about $1,200,000 worth of oil since it was drilled in, in January, 1926. Its depth is 4085 feet. It made lots of water from the time it was drilled in, its initial production having been better than 20,000 barrels of fluid daily.

At present, fluid stands 1750 feet from top of hole in the 5-3/16-inch casing.



Well in Weleetka District, Okla., flowing with Kellogg-Williams device described in accompanying article. Picture shows small amount of surface equipment necessary

The company was unsuccessful in operating the well on gas-lift, as it went all to water. Pumping also proved unsuccessful and unsatisfactory. Recently the well has been produced by swabbing, and has been making about 500 barrels daily. It probably could have made more, but the operators decided that, if they swabbed off only about 500 barrels a day, the fluid column would remain high enough to hold back the water. A peculiar feature about this well is that, if it is allowed to stand a short time, the water disappears altogether and the fluid column is solid oil, but as soon as the well is put back on production, the water reappears.

THE flowing device was installed in the well Jan. 28, and the well stimulated with 410 pounds of gas pressure which started it flowing in two hours. As soon as it started flowing the gas pressure was shut off and the well has since been flowing under its own pressure. It flowed 404 barrels in 10 hours Jan. 28, 780 barrels Jan. 29, 806 barrels Jan. 30, 820 barrels Jan. 31. On Feb. 1, it made 804 barrels, and showed an operating pressure on casinghead of 330 pounds. Production Feb. 2 was 802 barrels, Feb. 3, 817 barrels and Feb. 4, 806 barrels. Centrifuge tests on four samples of crude taken from the well during this period showed no water. In this well, the device is set down in the hole 2200 feet, with oil inlet perforations 400 feet below, in 2½-inch tubing.

This device, known as the Kellogg-Williams Flowing Device, is being introduced to the producing division of the industry by the M. W. Kellogg Co., engineers, designers, and manufacturers of special equipment. This company's petroleum activities heretofore have been confined principally to cracking process developments.

ORIGINAL work on this method of lifting oil was done by Irving B. Williams, while an associate engineer with the U. S. Bureau of Mines. A bureau publication, now in press, "De-Watering of Gas Wells," by Mr. Williams, embodies the theory and mathematical treatment of this problem. His patent rights have been taken over by the M. W. Kellogg Co., which has been subjecting the device to field tests. Tests have been conducted by Mr. Williams, who is now with the Kellogg Co., and George C. Stanley, an engineer of that company. The tests were undertaken to ascertain for the Kellogg Co. commercial possibilities of the invention.

Results of experimental work to date indicate that use of the device in a well where conditions are satisfactory should result in:—

1. Normal daily production
2. Increased ultimate production over that obtained by other methods
3. Decreased Lifting Costs
4. Decreased or delayed water intrusion
5. Decreased down-time
6. Decreased gas-oil ratio

From his study of flow of oil and gas through sands, Mr. Williams concluded that this flow is in the form of minute pistons of gas, each piston or bubble be-

ing surrounded by a film of oil. Between the bubbles or pistons of gas there are pistons of oil. Careful study of flow of oil and gas under pressure through sand cores indicated that this flow is of an isothermal nature (without change of temperature) rather than of an adiabatic nature (with change of temperature).

Theoretical isothermal curves for lifting fluid show greater efficiencies than adiabatic curves, except at very low pressures. Expressed in non-technical terms, a purely isothermal flow of oil and gas would have no by-passing of gas through the oil, no friction on walls of pipe, and no internal friction of the gas bubbles. In an isothermal curve, the gas-oil ratio decreases as the pressure increases, while in an adiabatic flow, the higher the pressure, the greater the gas-oil ratio becomes.

While of course it is not possible to obtain in an oil well such ideal conditions as those indicated above, resulting in a purely isothermal flow, Mr. Williams believes that the character of flow created by his device is of an isothermal nature, because the results when plotted make a curve similar to the isothermal curve.

AFTER completing his mathematical and laboratory studies of flow of oil and gas through sands, Mr. Williams built a glass flowing device at the Bureau of Mines and conducted a long series of laboratory experiments. These showed that where the gas inlet or inlets in the device were below a critical size and where the gas-oil ratio was within critical limits, a flow of gas-oil pistons resulted. This flow by pistons agreed with his conception of flow of oil and gas through sands, and seemed undoubtedly of an isothermal nature.

Further studies indicated that there is a critical range of back pressure within which gas under pressure does its maximum work in driving oil through the sand, and that within these limits, approximately 95 per cent as much oil will pass through the sand as would flow in with the well wide open, i.e., with no appreciable back pressure. In other words, with a piston flow, back pressure may be applied up to certain limits without materially affecting production.

Based on test of oil and gas flowing through cores of Davenport sand, these results are expressed mathematically as follows:—

	Example 1	Example 2	Example 3	Example 4
Pressure against one end of core	100 lbs.	100 lbs.	100 lbs.	100 lbs.
Pressure at other end (Back pressure)	0 lbs.	5 lbs.	34 lbs.	70 lbs.
Differential flowing pressure	100 lbs.	95 lbs.	66 lbs.	30 lbs.
Oil passing through core (units)	100	99	95	57
Absorbed gas at low pressure end (units)	0	1	6.8	14

After these laboratory experiments had been completed, a device was built and tried in an oil well in the Weleetka field, Okla., Magnolia Petroleum Co. having given the Kellogg Co. permission to try it out and to experiment under actual field conditions. Operating in the well, the device gave a flow by pistons, and, at different pressures, gave gas-oil ratios which, when plotted, gave a curve closely resembling the theoretical isothermal curve.

THE device performs most satisfactorily when free gas entering the tubing with the oil has been reduced to a minimum, and it has failed to work heretofore in wells making a large percentage of gas to oil. In such a well, the piston flow is not obtained. There is a definite upper limit of the gas-oil ratio beyond which the piston flow changes into an air or gas-lift flowing condition, i.e., a spray. Mr. Stanley of the Kellogg Co. has developed a new type of gas-oil separator or gas anchor, and thinks it will go a long way toward solving this problem of keeping the gas-oil ratio within limits where a piston flow will be obtained.

Returning to the theory of operation of the device, the Kellogg engineers state that, when a well is operated with back pressure, viscosity of the oil is reduced and its gravity increased. This is based on the fact that oil absorbs gas in proportion to its absolute pressure. Thus the oil retains some of its light hydrocarbons which it otherwise would lose. By keeping these light hydrocarbons in the liquid phase while the oil is passing through the sand, decreased viscosity and increased gravity are brought about. These factors tend also to reduce friction and adhesion of the oil to the sand grains.

Back pressure within desirable limits for any particular well has been obtained when, first, a flow by pistons results, and, second, when pressure at the casing head remains constant. At this point, the well should give practically its normal production without creating low pressure or suction on the sand, such as is occasioned, for instance, by swabbing, and in some cases with an air or gas lift operation. Also, where a piston flow is obtained, the gas is utilized most efficiently and pressure is retained in the sand. These factors tend toward drawing oil from a greater radial area, greater ultimate production, and to retard the flow of water through the sand to the well.

IN an oil sand, water and oil have different flowing characteristics. Water is only very slightly compressible, and will not absorb gas. Dead oil without dissolved gaseous hydrocarbons or gases is probably not more compressible than water, but with them, it is compressible. Flow of water through sand is almost exactly in proportion to differential flowing pressure. Flow of oil, however, is not governed entirely by differential flowing pressure, because the character of oil changes as the absorbed gas increases, and absorbed gas increases with pressure at which oil exists in the sand. With an increasing back pressure, amount of absorbed gas increases, viscosity decreases. In this way, compensation in part at least for loss of differential flowing pressure is obtained through decrease in friction. Application of back pressure, therefore, acts as partial compensation for loss of differential flowing pressure where oil is concerned, but this is not true as to water.

If the back pressure is within critical limits, theoretically 95 per cent or more of the well's normal daily production may be obtained, due to better condition of sand near bottom of well. The Kellogg engineers believe that more oil will be obtained with the Williams device over a 30-day period than by pumping, and actual results to date indicate this is true. Due to different flowing characteristics, intrusion of water is at the same time retarded. In some cases, where water is present near bottom of well, it is taken out of the sand and replaced with oil, the result being the well stops making water.

THE Kellogg-Williams device was first installed in Torsey Baker well No. 2 of the Magnolia Petroleum Co., in the Weleetka field, May 1, 1926. This well had been producing on the swab, and had been ordered on the pump, but had never been pumped. A short shut-in pressure test showed 160 pounds, and

Next Article in Uren Series March 2nd

BACK-PRESSURING is not the only practical means of reducing the amount of gas produced with the oil, and thus making the gas perform a more useful function in aiding in the production of oil than where wells are pumped or flowed under ordinary practice today.

In the coming two articles by Prof. Uren, in the exclusive series he is writing for National Petroleum News on latest developments in improved production methods, he will tell of such means of getting greater use from the gas, as gas-and-air-lifts, forming larger cavities at the bottom of wells, "stop-cocking" and so on.

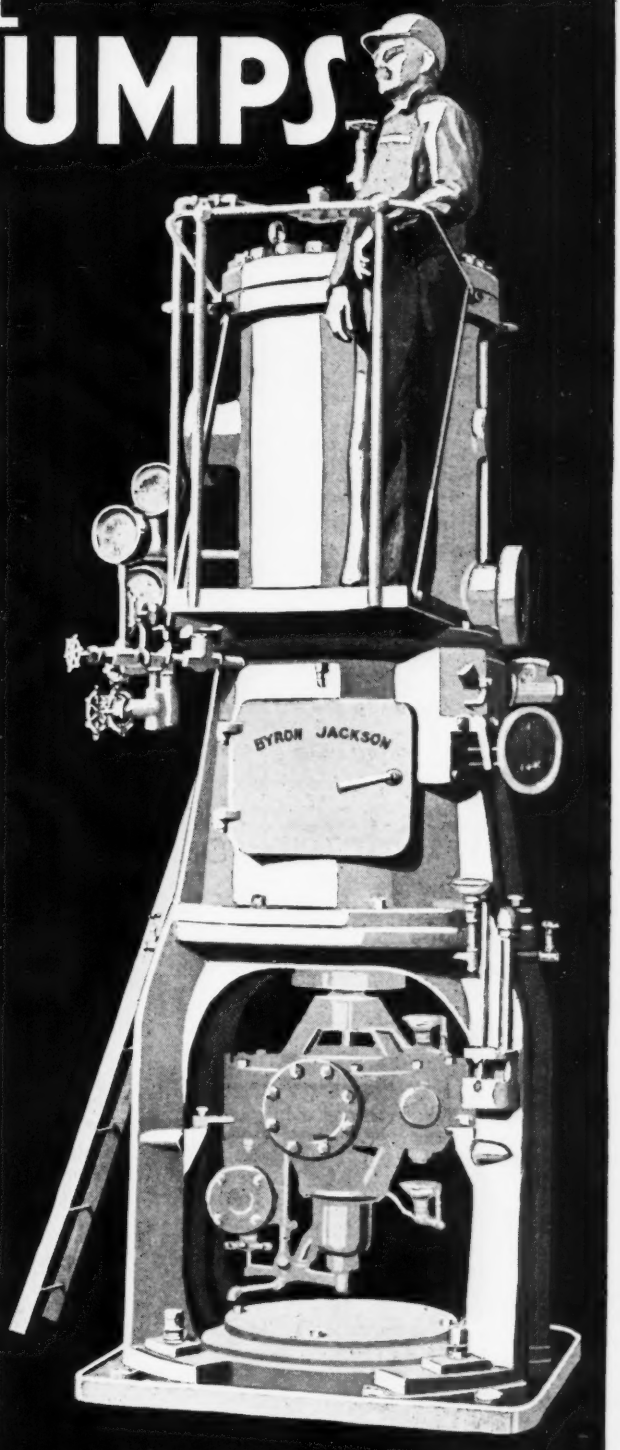
The timeliness of these articles is shown from the fact Prof. Uren, well known authority on production matters, is writing of practical methods operators in Oklahoma would be forced to use if the Marland gas conservation bill became law.

World Standard in Record Time

CENTRIFUGAL

HOT OIL PUMPS

Single and Multi-stage Centrifugal Hot Oil Pumps of varying capacities under assembly at the West Berkeley Plant of the Byron Jackson Pump Manufacturing Company.



REPRESENTATIVE LIST OF USERS OF THE BYRON JACKSON CENTRIFUGAL HOT OIL PUMP

Associated Oil Co., Avon, Calif.	Marland Refining Co., Poncah City, Okla.	Roxana Petroleum Corp., Woodriver, Ill.
Houston Oil Co., Camden, Ark.	New Orleans Refining Co., Goodhope, La.	Shell Co. of California Wilmington, Calif.
Indian Refining Co., Lawrence, Ill.	Prudential Oil Co., Baltimore, Md.	Shell Co. of California Martinez, Calif.
Imperial Refining Co., Ardmore, Okla.	Roxana Petroleum Corp., Arkansas City, Kans.	Vulcan Oil Co., Corapolis, Pa.

White Star Refining Co., Woodriver, Ill.

FOREIGN

Curacaosche Petroleum Co., Curacao, D. W. I.	Societe Anonima Astra Romana, Constantza, Roumania
De Bataafsche Petroleum Maatchapp, Balik Papan, D. E. I.	Mitsui & Co., Yokohama, Japan
John Fell & Co., Sydney, Australia	Asiatic Petroleum Corp., Tjepoe, Java

BYRON JACKSON
PUMP MANUFACTURING CO.

FACTORY AND MAIN OFFICE: BERKELEY, CAL.

Branches: San Francisco, Los Angeles, Visalia, Portland, Oregon, Salt Lake City

BYRON JACKSON

Charles F. Gladden of the Magnolia estimated its 12-hour shut-in pressure at less than 260 pounds. It was making 120 to 125 barrels daily, with gas-oil ratio of about 1200 cubic feet per barrel.

The device has been in this well continuously since first installed, except when removed for experimental purposes and to allow the well to flow open through the tubing for comparison. When the well was shut in Sept. 7, it showed pressure of 725 pounds. This pressure was built up during the night, when the well ceased flowing for some reason not determined. It resumed flow after the device had been taken out and replaced, and has been flowing steadily since. It has not made any water since July 1, and was producing 98 barrels of oil daily during the first part of January, when tests on a gas-oil separator and on pumping were begun at request of the Kellogg Co.

Last summer a comparative test of the well was made by flowing it through tubing with packer set at top. Its performance during this period, as compared with its performance with the Kellogg-Williams flowing device in the preceding period, as shown by the field reports of the Magnolia Petroleum Co. was as follows:—

Period of Test	Through Flowing Device May 16 to June 12	Through Tubing June 16 to 28
Pressure on Casinghead	225 to 275 pounds	150 to 325 pounds
Average Daily Oil Production	122 bbls.	113 bbls.

(Note:—Trouble with meter at the time made impossible an accurate statement of comparative gas-oil ratios.)

These figures show that the flowing device held back pressure within critical limits and maintained a more even pressure on the casinghead than did the tubing flow method. It also obtained more oil.

THE Magnolia's run tickets show a remarkable consistency of production for this well during the past two months. From Nov. 6 to Dec. 9 it flowed exactly 100 barrels a day, with recorded pressure varying between 290 and 300 pounds. For the next 10 days it made 99 barrels, except one day at 100 barrels, with pressure constant at 300 pounds. From Dec. 18 to Jan. 6, when the tubing was pulled to test the new gas-oil separator, it flowed 98 barrels each day.

Second installation of the device was in Torsey Baker No. 1, of the Magnolia Petroleum Co., also in the Weleetka field. At time of installation, this well had been on the pump since May, 1926, and was making 40 barrels a day, with 1 to 1½ per cent water. Its shut-in pressure at that time was 130 pounds in 14 hours.

The Kellogg-Williams device was installed in this well Nov. 3, 1926. From then until Nov. 16, adjustments were made to conform with the well's increasing gas pressure. During this period, the well varied between 25 and 49 barrels daily, and was on production every day except one. On Nov. 17, the well made 48 barrels with the device in, and showed gas pressure from 380 to 400 pounds. For the next 30 days, or until Dec. 17, its daily output was 48 barrels, recorded pressure each day being between 375 and 395 pounds. From Dec. 25 to Jan. 6 it made 47 barrels a day. The well has made no water since Dec. 1.

During the eight months that the device has been in the No. 2 well, the first installation, it has accomplished the following results:—

1. By keeping the well flowing steadily, down-time losses incident to pumping have been largely eliminated. 2. Expense of pumping, estimated at $75.00 a month, has been reduced. 3. The well's shut-in pressure has been largely increased. 4. Water that was coming in eight months ago has been stopped since July 1. 5. It is probable the well has averaged 10 barrels a day more oil than it would have done on the pump, which would mean 2500 barrels in the 250 days the device has been in the well. 6. The well's ultimate yield in all probability has been increased.

Apparently the device is best fitted and can be used most profitably on wells similar to those at Weleetka, whose gas pressure is 200 pounds or more.

"Jim" Gilmore's Do's on Conduct of Service Stations

Staff Special

DETROIT, Feb. 21

ADVICE on personal conduct and business procedure often contains a list of "don'ts." It is much better to present the positive rather than the negative and the list of "do's" that follows, was read before the Michigan Independent Oil Men's Association by James A. Gilmore, secretary, American Oil Men's Association, Chicago:

Do

Approach every customer with a smile and a cheery word, and a manner that makes him know you are glad he came in. And that makes **him** glad he came in. And that makes him **so** glad he came in he will determine then and there to come in again.

Do

Take care of him in such an efficient and friendly manner that he will keep right on coming in.

Do

Approach your customer as though you expect to sell him **all** the gas his tank will hold whenever he comes in. And all the lubricating oil he needs—if he needs any. And anything else you have to sell either of products or service.

Do

Approach your customer with the same eagerness to serve him something he is going to pay for as you approach him to render a service gratis.

Do

Instill into your filling station salesmen (you will note I do not call them attendants) the idea that they must use **all** their ability and energy to sell every customer, not only all that he wants but all that he needs.

Do

Prove to your filling station salesmen that it is only by such personal efforts that they truly represent **you** and really earn what **you** pay them.

Do

Impress on your filling station salesmen that service—the free kind—**can be** carried too far. After all, the station was built to sell goods—not just to give away service.

Do

Impress on your filling station salesmen that **they must not** accept any service the company gets no pay for—he **must** render it just as cheerfully as though he were getting paid for it.

Do

Impress on your filling station salesmen that **they must not** accept any pay for themselves for any service the company is supposed to be rendering gratis.

Do

Fire without warning any employe anywhere that you catch doing that.

Do

Keep your stations clean and neat and attractive inside and out—especially the toilets.

Cleanliness and orderliness are attractive. Those with fresh paint added have a great appeal. When a beaming personality of a filling station salesman goes with these, the sales appeal is well nigh irresistible. Let me just repeat for your earnest thought and consideration:

"A clean, well kept, freshly painted station manned by a salesman with pleasing personality will sell more gallons than any advertising appeal in the world—Yes, even more than any appeal that can be made on quality products."

I believe everyone of you will agree with me that 95 per cent or more of your customers call a great deal more for prompt, efficient, dependable service with a smile than they do about the gravity or end point or viscosity or any other qualities of your product that they don't know about and usually care little about when you try to tell them.

Advances in Natural Gasoline Manufacturing Methods

By George P. Bunn

Assistant Superintendent, Gasoline Department Phillips Petroleum Co., Bartlesville, Okla.

Delivered at A. I. M. E. Meeting, New York, Feb. 14-17

SO great has been the decline in the number of plants extracting gasoline from casinghead and natural gas by the compression method alone, in the last few years, that but little attention is given to this method. While compression plants decreased 66 in number in 1925 and perhaps as much more in 1926, absorption plants increased in number by 63 in 1925, and at least as many more net plants in 1926. Thus, a discussion of the subject of this article must necessarily deal with the absorption method of extracting natural gasoline.

A brief review of the articles published on natural gasoline within the last year shows that many phases of the industry have been covered, from the general economics of the industrial situation down to the minutest detail of construction method of operating problem. While necessarily some of these same topics will be touched upon, the attempt will be made in this paper to present at least a few new aspects of the business. The natural gasoline output of the country in 1925 was slightly more than 3,000,000 gallons per day, and the best estimates of production for the year 1926 place the daily average at more than 3,500,000 gal., while a careful survey, at the present, indicates the production to be better than 4,000,000 gal. each 24 hours. The increase in production has been both the cause and effect of stimulated interest in the business which has lead to the development of many unique processes and of much efficient commercial equipment which was not formerly available. Although field development has caused the installation of many new plants, undoubtedly a considerable portion of the increased production for the year 1926 may be attributed to these technical developments.

WITH increased natural gasoline available, interest in its potentialities has been enhanced. In a rather extensive investigation of motor fuels and their use in the modern automobile, Dr. G. G. Brown of the University of Michigan has developed that even 50 per cent natural gasoline in the ordinary motor fuel may be used with quite beneficial results, particularly since natural gasoline inherently possesses anti-knock properties. A long series of tests by Dr. Brown, both in public presentation and in laboratories of the University of Michigan, has demonstrated that substantial additions of natural gasoline to almost all motor fuels now on the market will add much to be desired in the present-day motor fuel. The particular improvements to be noted are ease of starting, better acceleration under load, and less tendency to knock. With such facts developed and wide publicity given them, undoubtedly the increased production of natural gasoline cannot long keep up with the demand which will be developed, but the future motor fuel instead of containing an average of but 11 per cent of natural gasoline will, if it is available, quite likely carry as much as 30 per cent, and, thus, one of our newly-exploited natural resources will give increased benefit to the motoring public. This must obviously be coming to pass, since the percentage of increase in production in 1926 has more than kept pace with the increase in the demand for motor fuel.

ONE of the first tendencies to be noted in the methods of the industry is the trend toward plants of larger capacity. In the beginning and for a considerable period thereafter, natural gasoline plants were built very cautiously and rarely exceeded a capacity of 10,000 gals. per day, the manufacturer usually being, in each case, the owner of the acreage producing the casinghead gas utilized in the individual plants. At the present time, many plants are built by natural gasoline manufacturing companies who own none of the producing acreage and, thus, where profitable situations may be blocked out by contract with the producer, gasoline plants are limited in size only by the quantities of gas available at distances from which it is practical to transport it; accordingly, many plants are being built with capacities ranging from 25,000 to 50,000 gals. per day and, in a few instances, plants with subsidiary equipment have been reported with capacities as high as 80,000 gals. for each 24 hours.

CONCERNS with enough courage, or vision, to build such expensive installations have also, through purchase, consolidated many of the smaller plants into fewer larger systems, materially decreasing the unit manufacturing cost, as well as stabilizing and strengthening investments in small situations of curtailed potentiality. Aside from these and other evidences of economic progress, the latest developments of the natural gasoline business have taken place in the physical equipment in the manufacturing plants themselves. The changes, however, have not in general been in the principle of extraction but have appeared in the mechanical equipment of the property. A greater efficiency of extraction by principles already developed has been effected and a superior and more uniform production of quite exact specification, meeting the demand of a trade exhibiting considerable selectivity, has been the result.

Many equipment manufacturing organizations, attracted by the increased production of natural gasoline in the past few years, have lately brought forth a number of types of complete, commercial, absorption plants, particularly in the small sizes usually referred to as portable plants. These plants are used largely by the natural gasoline manufacturer and, in some cases, by the oil producer itself, to properly conserve flush gas production under natural well

Natural Gasoline High Spots for 1926

(Given in paper on Economics of Natural Gasoline Manufacture, by G. R. Hopkins, petroleum economist, U. S. Bureau of Mines, at A. I. M. E. meeting, New York, Feb. 14-17.)

Estimated production—1,385,000,000 gallons, gain of 23 per cent over 1925.

Estimated total deliveries—1,379,674,000 gallons. Distributed: to refineries in tank cars for blending—75 per cent; to refineries by pipe line to run to stills—10 per cent; blended at gasoline plants—3 per cent; to jobbers for blending—0.7 per cent; losses and unaccounted for—11 per cent.

Average percentage increase in production year to year since 1911—45 per cent.

In December, 1926, 200 refineries were using natural gasoline, 70 per cent of total number in country turning out gasoline products.

For a number of refineries east of California, gasoline production in November, 1926, was 10,360,000 barrels. These plants used 590,000 barrels of natural gasoline, 6 per cent, in blending. Of the total gasoline production 4,830,000 barrels, 46 per cent was cracked gasoline.

pressure in new fields until drilling developments dictate the size and type of permanent plant installation the situation will warrant. These plants, in general, are relatively inefficient, comparatively difficult and expensive to operate in proportion to their capacity, yet in the hands of the irresponsible promoter they may prompt the offering of extremely high royalty rates which cannot be permanently maintained or met by the manufacturer who expects to continue building permanent plants which will render the producer a continual service. Quite a great deal of the type of equipment used in these portable gasoline extraction plants was originally designed for inclusion in refineries and permanent type natural gasoline plants and, at the present time, more such well designed heat exchangers, closed coolers, spray towers, automatic controlling and recording instruments, and many additional ingenious devices are being used in natural gasoline manufacturing than ever in the past.

ALTHOUGH bubble towers have been used in analogous industries for many years for absorption contacting and have even been used in isolated cases in the natural gasoline business for some several years, it is only lately that bubble type absorbers have gained in rather general preference. Bubble absorption towers have decreased the gasoline content of the residue gas from practically all plants where they have been installed and, in many instances have made quite marked increases in absorption efficiency. The most important contribution of the bubble tower, however, because of its greater efficiency in contacting the rising gas with the down-flowing absorption medium which has resulted in greater capacities per unit area of cross section, has been the simplification of plants. Additional absorption equipment of the older, packed-tower character representing such a small comparative investment in proportion to the increase in efficiency which might be effected, has quite often been installed, particularly for the purpose of doubly contacting the incoming plant gas and the absorption oil. This necessitated a great many high towers resulting in a multiplicity of controls to maintain equal distribution of the oil and the gas from common headers.

The bubble tower of increased diameter and lesser height has displaced these multiple installations, making the absorption equipment easier to control, eliminating the necessity of double contacting, and removing the elaborate connection work from the plant, while still maintaining the same, or even greater, efficiency of extraction. As an example of this simplification, one plant may be cited wherein were installed 24 absorption towers 3 ft. in diameter and 50 ft. high for double contacting 19,000,000 cu. ft. of gas per day. Two well designed bubble towers 8 ft. in diameter and 19 ft. high, for which the comparative simplicity of connections and control is evident, will handle very nearly the same amount of gas per day with at least the same efficiency, and it is further evident that the decreased height of the towers gives greater safety to plant operators.

THE stills in which the gasoline vapors are driven from the enriched oil were originally of the horizontal shell type wherein the oil was heated by means of closed steam coils, with sufficient live steam introduced into the oil body itself to properly reduce the effective pressure on the evaporating gasoline. Subsequently, horizontal shell type stills, receiving direct heat from furnace fire, were extensively used. Now vertical stills, very similar in design to the bubble type absorber, are operated with great economy and with a simplification of the plant corresponding to that which ensues in the absorption system with the installation of the bubble type absorber. In the bubble type still the enriched oil, after subjection to indirect steam heating in insulated, tubular preheaters, is passed downward through the stills meeting an upflow of live steam. This type of still permits a reduction in distillation equipment which is one of the most striking modifications of the plant of today.

The advent of the larger gasoline manufacturing plant and the incidental increase in the number and size of the oil pumping, water pumping, gasoline pumping, water treating, gasoline treating and other auxiliary equipment requiring motive power, rendered the line shaft drive a more and more difficult problem. To obviate this difficulty, many manufacturers have been purchasing electrically-driven units and, thus, another step at simplification of design has been taken although at perhaps a slightly greater installation cost. However, the decreased space required for such units, the lessening of the dangers of moving equipment to operators, and the uniformity of operation make these units the more desirable.

IT is trite to repeat that practically all later, larger oil fields have been located by their discoverers in a territory productive of the worst water for steam generation and cooling purposes, yet such is almost invariably the case. Where heretofore many manufacturers have haphazardly coped with the bad water situation by acid treating and equipment for the removal of scale from boilers, engines, compressors, coolers, and condensers showing the bad effect and inefficiencies resulting from the use of poor water, the modern plant has its water-treating system which gives relief from this burden and has actually produced savings in investment where previously it was necessary to make considerable allowance in a plant of a given capacity for the inefficiencies of those parts of the system coming in contact with untreated water. Although most operators in the oil field are profligate in the use of fuel, yet along with the water treater have come the boiler-feed water heater, automatic-fuel regulators, and boiler-level controls, all of which effect, in the gasoline plant, a greater economy, less burden on the equipment, and greater safety.

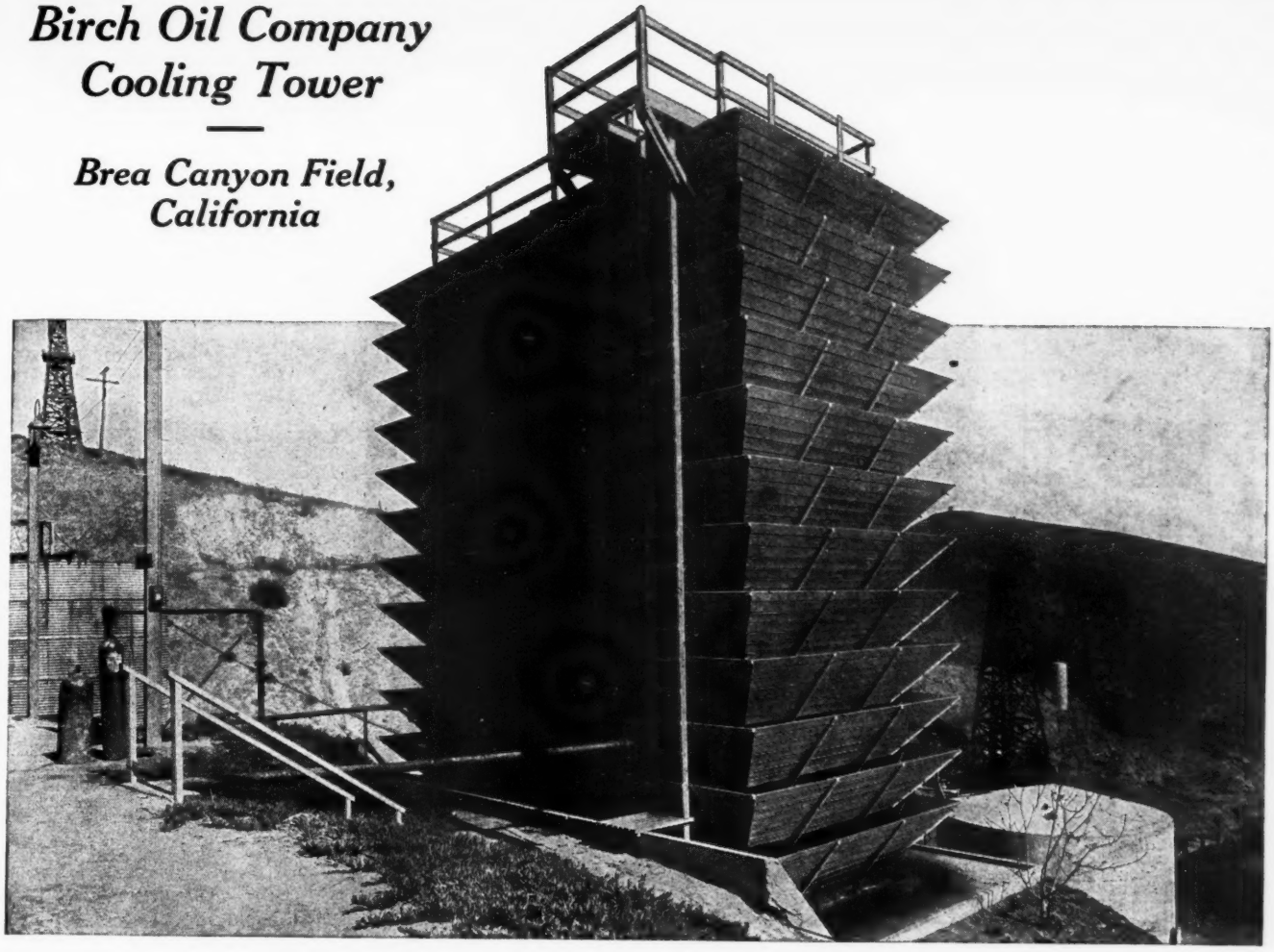
Much of the natural gasoline of the past has been produced for the market without treatment other than that received in the ordinary distillation and subsequent condensation after extraction from the gas by the absorbing medium and, although even today, the recognized grades of natural gasoline do not require it by specification, perhaps 90 per cent of the natural gasoline manufactured is chemically treated to pass the doctor test familiar to the petroleum industry and the corrosion test required particularly by all foreign markets. The nature of the unfinished product, and in some cases the manufacturer's preference, dictate the choice of the process used to render the gasoline "doctor sweet and non-corrosive."

THE three processes, or some combination of them, most commonly used are the calcium hypochlorite method wherein a solution of calcium hypochlorite, or bleach powder, is properly contacted with the gasoline, the sodium hypochlorite method wherein the gasoline is contacted with the chlorinated solution of caustic soda; or the "doctor" method, wherein a solution of the proper proportions of caustic, litharge, and sulfur are contacted with unfinished gasoline. In many cases the gasoline may be made to pass both the doctor test and the corrosion test by the proper control of a single treatment with any one of these methods, but, in other cases, a preliminary treatment with caustic soda is necessary in order to more adequately and economically prepare the gasoline to meet the corrosion test.

The modern natural gasoline treating plant is a well-designed system of contacts, washers or settling basins, and controls which has been benefited by freely borrowing from the art of treating in the refinery; but, whereas much treating of refinery products is done in open agitators at atmospheric pressure, natural gasoline, because of its more volatile characteristics must be treated in a closed system under pressure in order to prevent loss and to eliminate the danger from the heavy vapors resulting in the high rate of evaporation incidental to open treating. The recent discovery of certain natural gases containing objectionable quantities of hydrogen sulfide has rendered the process of treating so difficult of control and so much more expensive, as well as causing unusual corrosion in many parts of the entire gasoline plant, that many manufacturers are looking for an economical method of treating the raw gas to remove the objectionable component, hydrogen sulfide. At the present, except for the treatment of gas supplied to cities for fuel, the writer

Birch Oil Company
Cooling Tower

Brea Canyon Field,
California



IN the tower shown above, raw creek water at about 60 degrees F. is used as a cooling medium, dropping the temperature of oil and vapor from about 225 degrees F. to about 65 degrees F. A careful calculation of the cost of both wrought iron and steel materials plus labor costs for replacements, etc., shows that Reading Genuine Wrought Iron, in ten months' time, has repaid its first cost four times over. Furthermore, examination of the wrought iron discloses the fact that it is as yet scarcely damaged by corrosion and will last many months more.

READING IRON COMPANY
READING, PENNA.

DALLAS, HOUSTON, TULSA, SHREVEPORT, LOS ANGELES

READING PIPE
GENUINE WROUGHT IRON

Fig. 108
Screwed, Jenkins Standard Bronze Angle Valve.

Fig. 370
Screwed, Jenkins Standard Bronze Gate Valve.

Old friends and true

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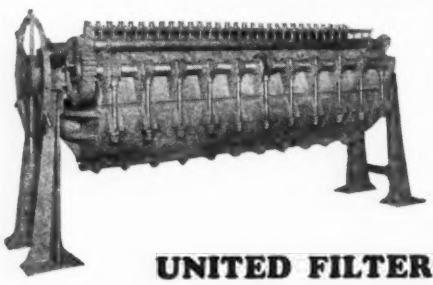

A Bulletin on the contact process and filtration with Sweetland Filters.

More than one hundred refineries are using Sweetland Filters in connection with the contact process.

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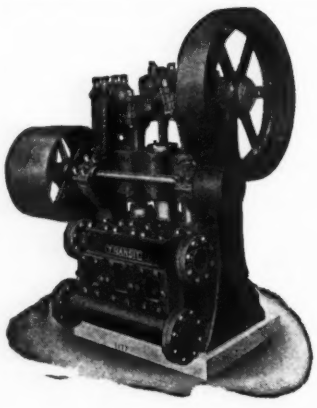

TRANSIT
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Bulletins on Request.

National Transit Pump & Machine Co.
OIL CITY, PA.

District Offices: **New York, Philadelphia, Tulsa, Cleveland, Pittsburgh, Houston and Denver.**

knows of no method which has proven economical enough to be employed in the treatment of that portion, so polluted, of the 3,640,000,000 cu. ft. of casinghead gas handled daily by the gasoline plants of the country.

IN the first few years of the natural gasoline business, the product marketed was little more than a liquid condensate of practically no specific limitation. As more was learned of the product and its usefulness, trade specifications were adopted requiring more careful control of operation. The specification earliest stressed were the recovery of the laboratory distillation and the gravity. Since most absorption plants employed a recompressor to subject to a higher pressure those uncondensed vapors recovered from the gasoline issuing from the primary condenser treating still vapors, the subsequent cooling of this compressed vapor produced a greater or lesser quantity of more volatile fluid, depending upon the pressure to which the vapors were compressed. In the plant of but a few years ago, the only means of ordinary control over the gravity and recovery of the finished product was through the regulation of the pressure of this vapor machine or the recycling of weathered vapors. If the finished blend of this more volatile product with the condensate resulting from the first cooling of the still vapors driven from the absorbent oil might still be of too high gravity or too low recovery for the particular market to be supplied, the only recourse of the manufacturer in meeting the specification, if his plant were not equipped for recycling, would be to weather his product in tanks or tank cars—that is, naturally boil or evaporate the gasoline—or evaporate by the use of a closed stem coil. The only other expedient available was to redistill the product, facilities for which were rarely provided.

TO meet particular specifications of gravity, recovery, and vapor tension, several modern plants are equipped with fractional distillation units wherein, under controlled conditions of temperature and pressure, many of the lighter constituents of the freshly made condensate are separated from the heavier constituents. This operation is carried out much as it has been for many years in several analogous industries, the fractional distillation of natural gasoline being carried out either in low pressure apparatus requiring refrigeration or in high pressure apparatus at temperatures more normal to gasoline plant operation. The operation of both systems have been covered by patents, the validity of which is now in litigation.

The process of fractionally distilling, or "fractionating, natural gasoline, when properly carried out, eliminates from those constituents normally liquid, those fractions normally gaseous, yet at the same time including in the normally liquid material a quantity of the least volatile of the normally gaseous frac-

tions sufficient to meet the specifications required." Fractional distillation is a thermodynamic problem and additional power is required in the operation of the apparatus for either heating or cooling. This additional power may appear either as steam from boilers or as the result of compression, depending on the type of apparatus used. Fractionation, as the natural gasoline manufacturer understands it, is controlled, highly selective weathering which prevents the loss of desirable natural gasoline constituents while eliminating the undesirable fractions, thus permitting the operator a wide range of possibilities in fulfilling the requirements of a "choicy" market. During the progress of these improvements other parts of the modern natural gasoline plant have been given attention and now not only is better operation general but the appearance of the property, even to the casual observer, is more suggestive of efficiency and more in keeping with the millions invested in the business.

WITH the development of the physical aspects of plants have come, from the research laboratory, better analytical methods which have already benefited and which will leave even greater impress on future design. There are available to some manufacturers methods and apparatus whereby both gas and gasoline may be analyzed with some precision. Results of gas analysis during the investigation of prospective fields are helpful guides to the plant designer and the two tests used jointly are sure control factors in securing the ultimate efficiency of extraction in operating plants. The rapid improvement in all testing methods, the late discoveries of research, the attraction of wide scientific attention, and the continued confidence of capital all portend still more interesting developments in the future.

20 Makers To Show Electrical Trucks

NEW YORK, Feb. 21.—The only representative show of electrical trucks held anywhere in the world will be in its seventh annual session here in the New York Edison Co.'s showroom at Irving Place and 15th St. during the week beginning March 14.

More than 20 manufacturers of electric trucks and electric truck equipment will be represented. The latest developments in battery charging boards and storage batteries will be exhibited.

SAN ANGELO, Tex.—Floyd O. Reynolds, geologist for the Amerado Petroleum Corp., died in San Angelo on Jan. 31. He had been in the service of that company for about two months, prior to which he had been since 1920 with the Indian Territory Illuminating Oil Co. Death was due to tuberculosis which resulted from being gassed in the World War. He is survived by his wife. Burial was in Chicago, his former home.

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There are six characteristics necessary in any effective material used for protection for pipe line from corrosion and rust:

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2. Must be unaffected by underground or atmospheric conditions. Variations in soils, moisture and temperature should not affect its protective qualities.
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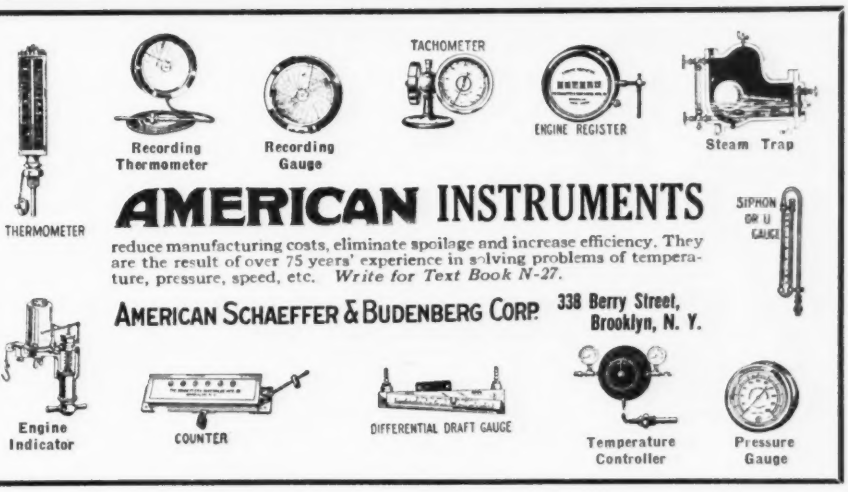
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Issue is Greater Than Fixing Margins

By Warren C. Platt, Editor

HERE is a continuation of our argument with the Wisconsin Department of Markets as to whether it is justified in dipping so largely into the oil business. The Department issued a statement several months ago that tank wagon margins have been too wide. We criticized the statement that, on its own admission, it didn't prove an excessive margin especially on the competitive grade of gasoline, and we raised the question of just what is too wide a margin and who knows, and by what can it be judged?

D. E. Montgomery, who is Industrial Marketing Specialist looking after the oil industry in the Department of Markets, comments as follows:

"Your editorial of February 2 seems to invite me to write you for publication what I wrote you earlier in a personal letter. Well, if you insist—

"You quote our statement about a 4.8 cent margin again, but you quote only to a purpose. For you do not quote the statement made about high-test margins. Nor do you dwell on the figures of service-station growth contained in the same market letter. High-test margins were running from 1¼ cent to 2½ cents larger than low-test last year. In this connection the inclosed figures on gasoline gravities are pertinent. In both January and December 1926, the only months analyzed, the average gravity was over 60, which means that about half of the gasoline sold in Wisconsin in winter months is in the high margin class.

"Nor do you give weight to the fact that high margins were sustained at dangerous levels for a long period last year. The balance of the year only aggravated this situation. October averaged 6.5 cents, November 6.2 cents and December 5.8 cents, after allowing for the higher gravity sold at low-test price in the latter month. The average for the year was 5.1 cents and was slightly in excess of the average for 1923.

Facts and Conclusions Asked For

"Your editorials imply, but do not assert, that our analysis of last year's gasoline market was incorrect. If you think so, why not present your facts and your conclusions? Since that analysis was written the margin has been reduced two cents through tank wagon reductions of 3 cents, against a drop in the refinery price of only 1 cent. If the margin was reasonable then, it is 2 cents less than reasonable now; yet, when the January reduction was made I heard no objection to it at the state oil convention then in session. When the discount on 50-gallon fills was announced by Standard, I heard some very decided approval from independent jobbers. Our market reports indicate that a number of jobbers are not only meeting the discount, but are making a flat reduction of it without regard to gallonage. **They** know that the long margins of last year were not an unmixed blessing. Why don't **you** know it?

"No, Mr. Platt, that October letter was not sensational. And it would be described as an attack on the oil business only by those who want a fat living out of it right here and now, even though that will mean protracted hardship for competitors in the future and excess investments to be carried either at a loss to owners or by high prices to consumers. We, together with a large and growing number of oil men, do not subscribe to this 'gobble and git' philosophy. If you do, say so in so many words, and you will get plenty of publicity.

"Yes, a public department needs publicity, but you are stretching a point when you call us 'sensational.' Do you believe that the oil industry can prosper only through the shutting off of outside criticism? Aren't you looking in the wrong direction? Which was the more sensational event in 1923, Governor McMaster's coup d'etat, or the 9 cent margin that made it possible?"

Wisconsin Gravity Inspections of Gasoline

(Compiled by Department of Markets from Records of Oil Inspection Department)

The average gravity of 1677 cars inspected January, 1926 was 60.9

Eliminating the cars that were lower than 56 and higher than 70, there were in this month 1623 cars averaging 60.7

The average gravity of 2137 cars inspected in December, 1926 was 62.2

Eliminating the cars that were lower than 56 and higher than 70, there were in this month 2053 cars averaging 62.2

Thus it is shown that the average gravity of motor vehicle gasoline increased 1½ degrees in gravity between January and December.

The same general fact is shown in another way, if the number of cars in each of four gravity groups is computed, and shown as a percentage of the total inspections for the month. Thus:—

GRAVITY GROUPS:—	58-59-60	60-61-62	62-63-64	64-65-66
Jan. 1926—No. of cars ..	884	565	359	205
% of Total	52.7	33.7	21.4	12.2
Dec. 1926—No. of cars ..	484	1044	758	574
% of Total.....	22.6	48.9	35.5	26.9

NOTE: The above percentages will add up to more than 100 because the 60, 62 and 64 cars have been included in two groups. This does not destroy the comparison between the two months. It will be seen that the 58-60 classification has fallen from more than one-half of the total in January to less than one-quarter in December. The higher groups in December have made up what this low group lost. Especially note that the 64-66 classification includes more than one-quarter of all the gasoline, and is 19 per cent larger than the 58-60 class in December.

* * * * *

Editorial Comment on the Above

Last November we took exception to a statement issued to the public by the Wisconsin Department of Markets that an average spread on competitive gasoline of 4.8 cents per gallon was excessive—in fact, in that statement the Department acknowledged that all marketers were not getting that spread because of the discounts they were allowing.

We pointed out that the fairness of margins could only be judged by the profit and loss over a long period of time—a matter of years.

We did not comment specifically on the high gravity margins, because we felt the comment was too obvious and that comment is, that any premium price and premium quality article generally meets with more sales resistance and moves in smaller volume and hence has to carry a higher sales and distributing cost.

We are urging Mr. Montgomery to continue this discussion because we believe that consideration of it, regardless of any merit to either Mr. Montgomery's argument or our own, will cause the oil industry to do more serious thinking in connection with prices and costs and in regard to government's relation with business.

Mr. Montgomery represents a big state that has gone farther in its regulation of the marketing end of the oil in-

dustry than any other state and, under Mr. Montgomery's supervision, it has operated, we believe, about as sanely as most any state is likely to. However, this is not to be interpreted as our subscribing to either the state's activity or Mr. Montgomery's argument.

The attitude of Wisconsin may be the attitude of other states. The actions of Wisconsin may become the actions of other states and Wisconsin and the other states may in turn go still further in supervising the affairs of the oil industry. Future administrations in Wisconsin may be more radical than the present one, as represented by Mr. Montgomery and his superiors. We believe there is much that the oil industry and all business should fear in the Wisconsin situation.

What Is an Excessive Margin?

This whole argument boils down into what is an excessive margin and who is competent to judge, and on what evidence should they judge?

We have submitted, in our arguments, that a margin can only be judged over a period of years and that one must take into consideration whatever losses have gone past and whatever losses may come in the future. That is an easy enough statement to make, but if each man who is reading this editorial, was charged with the task of ascertaining whether or not a given margin was excessive—let him stop and try and figure out how he would go about it. Frankly, the more we think of it, the more aghast we are at the size and complexity of the problem.

Right at the present time, considering margins over the rest of the country, it would be a very easy matter to say that, should margins in Wisconsin, for instance, be 15 or 20 cents a gallon—in other words, three or four times the margins in the rest of the country and there did not appear to be any special reason in Wisconsin for that—it would seem to be easy to say that those would be excessive. But as you get down nearer the average margin over the rest of the country, the more one finds himself puzzled as to just when a margin ceases to be excessive. It may be excessive for one company in a district and not be enough for another company and yet each company may be entitled to do business or to try to do business.

It may be more in one part of the country, by reason of less population, than in another part. It may be more in one part of the country because there is less gallonage possible in the winter time than in other parts of the country in the winter time,—that is, there would be a more unequal distribution of the gallonage by months throughout the year. It is entirely possible that, if one could split hairs, they would find that a marketer at the northern end of Wisconsin is entitled to a greater margin than at the southern end; that those in the country districts of Wisconsin are entitled to a larger margin than those in the city, where automobiles can run more nearly the same mileage the year around.

Many Factors to Consider

In considering this matter of margins on gasoline, one must consider what else the oil companies are doing—what else they are selling and at what margins. It is possible that gasoline may be carrying more of the load and lubricating oil less of the load than in previous years. We know that oil companies are giving more service to the public at service stations than they used to. Every gallon of water and every pound of air given away at a service station has to be paid for somewhere. The amount of this free service may vary at different stations as it may vary from year to year. The taxes on real estate used by oil companies, the personal property taxes in a state, and the extent, if any, of an income tax on corporations and individuals as well—all of which taxes fluctuate from time to time, in fact, are increasing for the most part the country over—must have some effect on the cost of doing business and contribute towards an increase in margins.

A group of oil men at a given moment may agree that margins are excessive, or not sufficient, or just right. But that doesn't necessarily mean that opinion should hold for a larger group of oil men at the same time, nor does it mean that even the particular group of oil men are correct as regards even their own business. It is entirely possible that some of that very group may need wider margins at that moment and not know it. If they could obtain those higher margins and properly conduct their businesses they would continue to be helpful competing units in the oil industry, fighting with other units to improve the service to the public at a reasonable price.

But whatever the margin, we do not believe, as a fundamental proposition of government, that the state should concern itself with the size of that margin, provided there is active and fair competition for the business.

Competition Is Public's Protection

Here again there could be a considerable argument as to what is active, fair competition. Mr. Montgomery, in some previous statement, argued that there wasn't such competition in Wisconsin because Independent oil companies were not reducing the tank wagon price of the Standard Oil Company all the time. I believe somewhere we commented that changes in price did not necessarily come overnight as a result of competition; but that over a period of time they are bound to come, as, according to Mr. Montgomery's letter quoted above, they have come in recent weeks in Wisconsin.

Wisconsin has plenty of laws on the statute books to prevent conspiracies in restraint of trade and it has plenty of facilities to enforce those laws. We do not believe a government should go beyond seeing that there is open competition because we do not believe that government is competent to pass upon the intricate details of an industry's affairs and say just when a margin should be 4 cents or 4¼ or 4⅝ or 5.32 cents per gallon, or per pound, or per dozen.

If a state is going to interfere on gasoline prices and undertakes by its advice or action to set the limit for those prices, then it is only logical that it do the same for all other lines of business. If it doesn't, then the state obviously is unfairly discriminating against the oil industry. But if it should appear that the state of Wisconsin, over any length of time, **seems to be successful** in regulating the gasoline price,—whether it actually is or not would be aside from the question,—then the chances are the state will tackle other products and before we know it we will have a vast organization of state employes monkeying with all kinds of business. That will be decidedly to the detriment of business and to the detriment of the people of that state and of the country.

A state cannot supervise any single article unless it is going to supervise all articles made by all business and that means farm products and professional services as well. We had an illustration of that during the last war. The government felt it was necessary to fix prices on certain products. The minute it started the government found it had to fix prices on other products and then on still other products and had the war continued long enough, we probably would have had prices fixed on all things.

Mr. Montgomery and the officers of the state of Wisconsin and perhaps some oil men in Wisconsin may believe that this argument is over only a simple matter as to whether a tank wagon margin should be four or five cents, (which parenthetically we submit is not as simple as it appears), but in fact it is over-state supervision of all business which we submit is mighty serious, to say nothing of being contrary to all the law and ideals on which this government is founded.—W. C. P.

Dealers Enlisted in Search For Key To More Sales for Independents

THE buying habits and characteristics of that well-known individual, the Average Motorist, are to be subjected to intensive study and research by the MonaMotor Oil Co., Council Bluffs, Iowa.

To help out, the oil company is enlisting the cooperation of Independent oil dealers everywhere, whether they handle its oils or those of other companies, in answering a set of questions designed to draw out practical experience of dealers as to how they attract the business of Mr. Average Motorist.

Naturally enough, the first problem to be tackled by the new research department of the MonaMotor Oil Co., in cooperation with Independent dealers everywhere is:

"How can the independent oil dealer stop cars at his place of business?

To draw out experience of dealers in this first step in getting a man's business, 11 questions are asked, the answers to which may contain, for the individual dealers, the key, in part at least, as to how they have solved this problem.

There are prizes—a barrel of motor oil to each of the ten dealers sending in the best suggestions and a spring oiling device to each of the 25 sending in the next best answers.

The answers and suggestions sent in are to be analyzed and compiled and sent to the dealers taking part in the investigation, according to the announcement by Don Searle, advertising manager of the company, in the February issue of the Oilmanac, the company's own publication.

THE subject of the clinic, the Average Motorist, is to have a crack at prize money himself. He can pass on his own buying habits, if he wants to, and maybe win a 15-gallon or a 5-gallon package of motor oil. He is offered two questions:

"What has made you stop at any service station for the first time?"

"With the exception of cut price signs, what would induce you to stop at a service station or garage with which you are unacquainted?"

The contest for consumers is to be announced over the MonaMotor Oil Co.'s broadcasting station at Council Bluffs, from which it has sent entertainment and educational programs for some time. Dealers will pass out the questions also. Answers should be addressed to the Sales Research Dept. The contest for consumers closes April 1. The company's statement in the Oilmanac is as follows:

"The MonaMotor Oil Co. has organized a research department which will be of untold value to independent oil dealers who will make use of it. It is conducted entirely independent of the other branches of the business, and its sole purpose is to help the independent oil dealer to sell more oil and make more money.

"The MonaMotor Oil Co. believes it should go further than merely to supply dealers with the highest quality of lubricants made. We believe that our interest in the products which we sell dealers should continue until those dealers have in turn sold their purchases to the consumer.

"Therefore, the sales research department is designed to give unselfish service to dealers in MonaMotor Oils. It will, however, go further than this. It will serve all independent oil dealers who will cooperate with us, no matter what brand of oils they handle.

How can the independent oil dealer stop cars at his place of business?

First Questions in the Cooperative Research Program for Independent Dealers by MonaMotor Oil Co.

1.—Do uniformed attendants help?
2.—Does a special sales offer aid?
3.—Does whitewashing and landscaping help?
4.—Does attractive equipment help?
5.—Should free air and water equipment be prominent?
6.—Are rest rooms, especially for women, a help? If so, how prominent should they be?
7.—Does not a handsome, large sign, advertising a well-known oil help?
8.—On the other hand, do too many signs detract?
9.—What effect has lighting on bringing in business in the evening?
10.—Does advertising help? If so, what kind—newspapers, cards, circulars, handbills or what?
11.—What effect does location have?

Most of all, we want your original ideas. Explain fully.

First Survey Now Being Made

"THE first big survey is now being made. It was inspired by hundreds of letters we received, asking us to suggest how the independent dealer can stop cars at his place of business. This is a big problem. Doubtless you have thought a great deal about it. We are going to try to find the right answer to that question—an answer based on the actual experience of thousands of dealers. When we do find the answer, and place it in the hands of the independent dealer, it will be worth thousands of dollars to him. And in finding the answer, we need your help. Will you give it to us?

Please Answer These Questions

"Can you give us definite answers to the following questions? Will you answer them for us, as fully as you can, adding facts which will prove the point, if possible, on each question?

"Each dealer who assists in this survey will be sent a report of the result. It may be worth a great deal of money to you, but aside from the stamp required to mail us your letter it will not cost you a penny."

Experience has shown that it is best to consider but one problem at a time. So for the present, we hope you will answer the question, "How can the independent oil dealer stop cars at his place of business?" Please answer by taking into consideration the questions. But please give us, in addition, any other ideas you may have found successful.

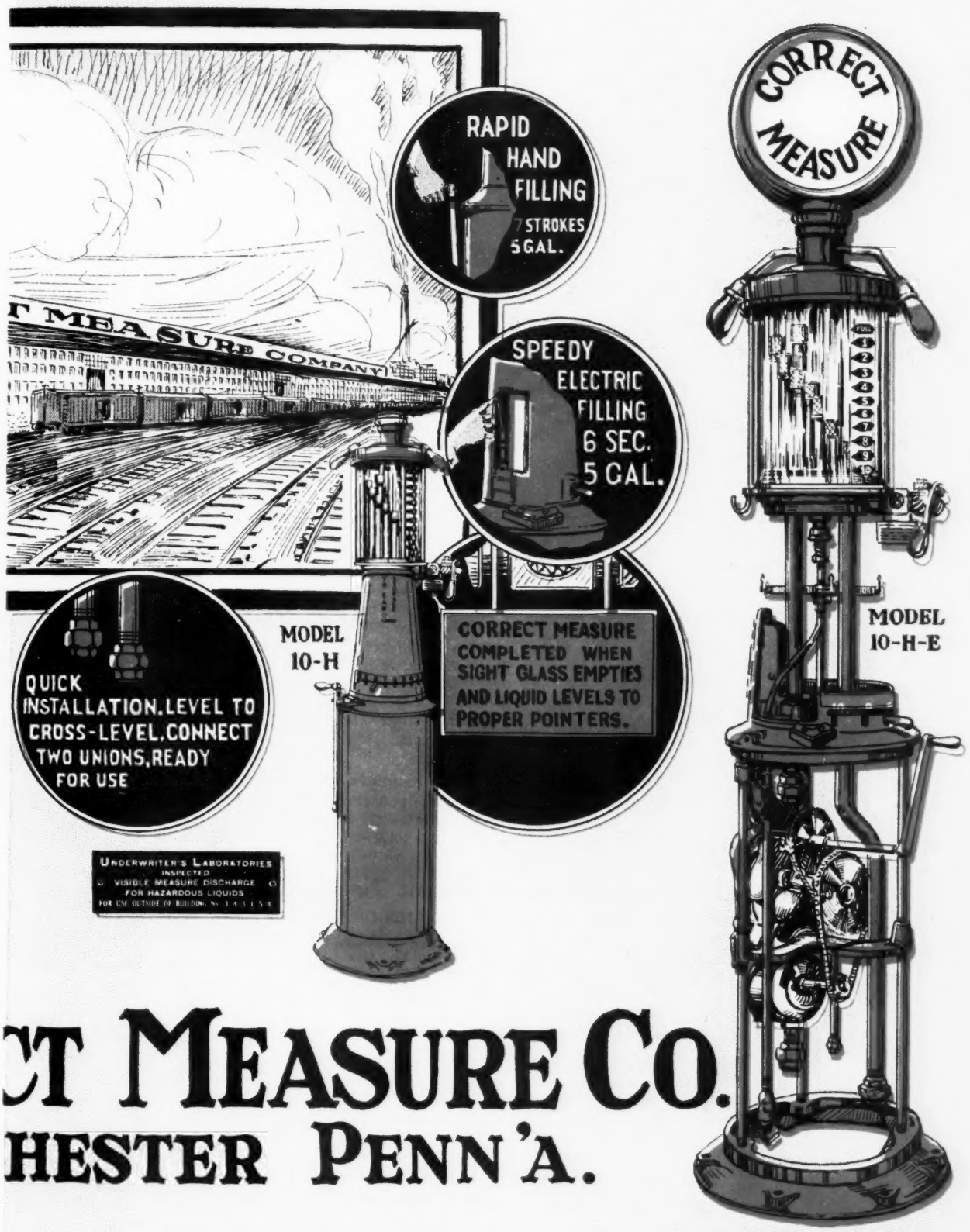
Later we shall make other surveys, to find how to sell more, after the consumer does stop. We shall also go into the question of how to get people back, after the first stop, and how to make them steady customers. But that will come later.

We believe that 10,000 dealers should answer the above questions, in their own interest, and help us to find the right answer to this vital problem. So please answer the questions asked, but don't forget original ideas you may have. Your ideas will be exchanged for other ideas of your fellow dealers, and you will be better equipped to get more business. These new ideas will be printed in the Oilmanac, and full credit given the originator.

Leases New Terminal

TULSA, Feb. 21.—The North American Car Corp., which since the first of the year has been active at times in the export markets in the Mid-Continent, has leased the oil terminal and storage plant of the International Warehouse & Storage Co. at Avondale, La. Acquisition of this plant gives the North American Car Corp. two complete export plants with a total storage capacity of 15,000,000 gallons. The lease on the International plant was dated Feb. 1 and already has been put into service by the lessee.

eed we say?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HESTER PENN'A.

Natural Gasoline Compression Test Code Approved By Gas Producers

Staff Special

TULSA, Feb. 19

THE Natural Gas Association of America has approved the amended compression test code for testing gasoline content of natural gas as proposed by the Association of Natural Gasoline Manufacturers. Notice to that effect has just been received by A. V. Bourque, secretary of the gasoline manufacturers' association.

The amended code now will become the joint tentative code of the two associations. In case further amendments are presented by either buyers or sellers of casinghead gas they will be considered and tested out by special committees of the two organizations.

The former tentative code was adopted by the Natural Gas Association of America in May, 1924. The gas testing committee of the Association of Natural Gasoline Manufacturers began an exhaustive series of tests under the code and under variations from its provisions and recommended changes last spring at the annual convention. Pending approval by the Natural Gas Association of America the manufacturers have not released the new code for publication until just now.

TESTS on which the amended code is based were conducted in various parts of the Mid-Continent field between Sept. 28, 1925, and Feb. 28, 1926. Gases tested varied in gasoline content from 0.81 gallons per thousand cubic feet to 18.5 gallons.

All tests were conducted under carefully controlled conditions by a group of various types of cars of both buyers and sellers, simultaneously on gas drawn from a common supply.

Of the five cars which made tests on all gas supplies, two were equipped with two stage compressors. High pressure coils varied in length from 29½ feet to 75 feet and in outside diameter from ¼ to ½ inch. Four cars had plain accumulators and one a water jacketed accumulator.

The tests indicated no apparent advantage in either single or two stage compression outfits and consequently both are permitted in the new code. Finding no advantage in using condenser water maintained at between 55 and 65 degrees F. over a temperature range of 32 to 40, the commitee recommended the lower temperatures because of the extreme difficulty in regulating the higher temperatures within the limits of tolerance.

ALTHOUGH the total length of cooling coils of two stage test cars was over four times as great as those of the single stage cars and although the gas discharge of compressors was about the same, the committee found little variation in results. For that reason it recommended that coils be at least 30 feet long with a diameter tolerance of ⅜ to ⅝ inch outside diameter. The former method demanded a 30-foot coil length, with tolerance of 10 per cent and provided that the coil should be of ⅜ inch O.D. copper tubing.

NO advantage or disadvantage was noted in using an accumulator equipped with a water jacket. This feature thus is optional in the new code. For convenience in calculating results it was recommended that either 13.2 cubic feet or 26.4 cubic feet of gas be passed through the apparatus in testing.

Table No. 1 is a summary of comparative test results of the five different cars on a series of 10 of the most im-

Summary of Tests on which Gasoline Content Testing Code was Changed.

Table No. 1—Summary of Test Results of Most Important Series in Gallons of Gasoline Per Thousand Cubic Feet Net at 60° F.

TEST NO.	RUN	CAR "A"	CAR "B"	CAR "C"	CAR "D"	CAR "E"	AVERAGE	REMARKS
1	1st	10.50	11.00	10.04	10.60	12.70	11.04	
	2nd	12.45	11.20	11.30	11.30	12.40	11.73	
2	1st	12.20	12.00	11.00	12.50	13.50	12.24	
	2nd	13.35	13.08	10.92	12.30	13.50	12.63	
3	1st	12.60	13.20	10.70	12.60	13.10	12.44	Same as No. 2 except condensing temperatures at 60° F.
	2nd	12.35	12.90	11.00	12.15	13.70	12.41	
4	1st	10.05	12.50	10.60	10.80	13.10	11.41	
	2nd	10.35	11.80	11.10	10.45	12.60	11.26	
5	1st	0.85	0.74	1.00	0.54	0.76	0.78	
	2nd	0.78	0.74	0.94	0.51	0.94	0.78	
	3rd	0.79	0.74	0.94	0.48	0.94	0.78	
6	1st	1.12	1.32	1.22	0.97	1.52	1.23	
	2nd	1.22	1.32	1.32	1.02	1.38	1.25	
	3rd			1.26		1.38		
7	1st	2.62	2.68	2.30	2.22	2.92	2.55	
	2nd	2.58	2.66	2.36	2.14	2.88	2.52	
8	1st	3.85	3.20	3.40	3.04	2.92	3.48	
	2nd	3.60	3.10	2.96	3.02	3.84	3.30	
9	1st	3.42	3.30	3.64	2.98	3.90	3.25	Same as No.8 except condensing temperatures 60°F.
	2nd	3.43	3.24	2.68	2.86	3.78	3.20	
10	1st	1.46	1.42	1.28	1.12	1.60	1.38	Same as No. 6 except condensing temperatures 60°F.
	2nd	1.44	1.46	1.28	0.99	1.34	1.30	
Car Averages		5.76	5.89	5.10	5.46	6.17	5.76	(Made on following day.)

Note: (1) Air tests were made on the residue from various cars at intervals in order to determine if air inleakage might be causing a variation of results. Tests made on various cars running on a given gas indicated the same air content.

Note: (2) Some thirty other tests were made to verify or disprove points of contention or uncertainties, but after these tests no conclusions were reached, which in any way influenced changes in the test code. Such data have been omitted from this report.

Summary of Tests on which Gasoline Content Testing Code was Changed

TABLE NO. 2—ABRIDGED DETAILS OF TESTS

Test No.	Run	District	CAR "A" Water Temp.	CAR "A" Cu. Ft. Run	CAR "A" Gas Temp.	CAR "B" Water Temp	CAR "B" Cu. Ft. Run	CAR "B" Gas Temp.	CAR "C" Water Temp.	CAR "C" Cu. Ft. Run	CAR "C" Gas Temp.	CAR "D" Water Temp.	CAR "D" Cu. Ft. Run	CAR "D" Gas Temp.	CAR "E" Water Temp.	CAR "E" Cu Ft Run	CAR "E" Water Temp.
1	1	Glen Pool	38	28.44	100	36	14.72	120	36	14.20	100	34	28.66	104	36	14.72	120
	2	Glen Pool	38	28.92	110	36	14.72	120	36	14.60	116	34	28.25	117	36	14.7	120
2	1	Glen Pool	40	28.68	105	38	14.60	115	38	14.27	102	38	28.87	108	37	14.6	115
	2	Glen Pool	40	28.68	105	38	13.67	118	38	14.37	106	38	28.84	108	37	14.71	120
3	1	Glen Pool	60–61	28.43	100	60–66	14.83	124	55–58	14.28	102	56–59	28.83	108	60–65	14.83	125
	2	Glen Pool	62–65	28.54	102	55–62	14.88	126	56–64	14.50	100	60–61	28.83	–	58–65	14.85	125
4	1	Glen Pool	61–60	28.92	110	60–68	14.98	130	58–60	14 27	102	62–65	29.10	114	58–60	14.75	120
	2	Glen Pool	62–61	29.20	115	60–63	14.98	130	60–58	14.46	110	65–67	29.23	117	58–62	14.83	125
5	1	Pershing	36	27.92	90	34	14.11	96	35	13.85	86	33	27.72	86	35	14.24	100
	2	Pershing	–	28.32	98	–	14.25	100	–	14.03	92	–	27.86	88	–	14.33	105
	3	Pershing	–	28.74	106	–	14.25	101	36	14.05	94	–	27.95	90	–	14.46	110
	4	Pershing	–	–	–	–	–	–	–	–	–	–	–	–	–	14.46	112
6	1	Pershing	36	28.58	103	38	14.27	102	36	14.22	100	33	28.32	98	37	14.47	110
	2	Pershing	–	28.74	106	–	14.29	102	–	14.22	100	–	28.54	102	–	14.46	110
7	1	Pershing	38	28.18	95	36	14.38	105	35	14.01	92	34	28.32	98	36	14.31	105
	2	Pershing	–	28.18	105	–	14.34	105	–	14.11	96	–	28.32	98	–	14.48	110
8	1	Pershing	38	27.70	86	–	14.30	104	–	13.86	86	–	28.02	92	36	14.33	106
	2	Pershing	38	27.52	82	–	14.08	94	–	13.80	84	–	27.88	88	–	14.21	100
9	1	Pershing	59	27.26	77	60–65	14.14	97	55–56	13.66	78	57	27.75	86	58–60	14.46	108
	2	Pershing	59½	27.58	85	61–65	14.27	102	56	13.76	82	60–63	27.78	87	64–65	15.76	115
10	1	Pershing	60	27.26	77	59	13.81	84	60	23.71	90	60	27.46	81	56–58	14.25	100
	2	Pershing	60½–61	27.26	77	60–64	13.96	90	58	13.71	80	63	27.52	82	65	14.21	100

WALWORTH VALVES

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portant tests. Table No. 2 gives abridged details of the same group of tests. Car "A" referred to in the tables was equipped with an 8 by 5 Ingersoll Rand vacuum pump, a 4¼ by 2 by 4¼ Rix two stage compressor, had 60 feet of ⅜ inch low pressure coil of copper tubing and 60 feet of ⅜ inch high pressure copper tubing. The accumulator was plain.

Car "B" had a 6 by 3½ Rix vacuum pump, a 2½ by 3 Rix single stage compressor, 35 feet of 7/16 inch O.D. copper tubing and a plain accumulator. Car "C" was equipped with a 4½ by 3 Rix vacuum pump, a 2½ by 3 Rix single stage compressor and had single stage compressor and had 29½ feet of ⅜ inch copper tubing. The accumulator was water jacketed.

Car "D" was equipped with a 6 by 3½ Gardner Rix vacuum pump, a 4¼ by 2 by 3½ two stage compressor, 75 feet of ¼ inch low pressure coil and 75 feet of ¼ inch O.D. copper tubing for a high pressure coil. The accumulator was plain. Car "E" had a 6 by 3 Rix duplex unit vacuum pump, a 2½ by 3 Rix duplex unit compressor, 32 feet of ½ inch copper tubing for a coil and a plain accumulator.

Following is the complete text of the revised tentative code of the two associations:

1.—Apparatus

A. Vacuum Pump:

IT is very essential that the vacuum pump used for this test shall be absolutely free from leakage in order to prevent air mixing with the gas being tested. In-leakage of air will cause a low test and the error is undeterminable. Consequently, the vacuum pump used shall be of the cross-head type with the piston rod passing through a stuffing box which when packed will prevent all leakage. The vacuum pump shall be of such a capacity that it will maintain on the meter a pressure of 4 oz. per square inch or any other particular pressure above atmospheric agreed upon by contracting parties with the compressor running at rated speed under any field vacuum condition the operator may encounter.

B. Test Meter:

The test meter shall be installed at the intake of the compressor. The meter shall be scaled to one-hundredths of a cubic foot. At the intake of the meter or tapped into the upper gas chamber of the meter, a U-tube pressure gauge shall be connected as a means of determining the pressure on the meter. A thermometer shall be placed as near the outlet of the meter as possible so that the volume can be corrected to 60° F. or any other temperature agreed upon between contracting parties. The meter shall be within 3 per cent of correct by displacement test. The test meter shall have its bellows suitably treated to prevent the absorption of "gasoline" vapor from the gas passing through it.

C. Compressor:

The compressor shall be of the cross-head type, with piston rod packed to prevent the gas from leaking and escaping to the air. Its capacity shall be 2½ cubic feet of gas per minute at atmospheric pressure when run at rated speed with a tolerance of one-half cubic foot per minute.

D. Cooling Coil:

The cooling coil for each stage of compression shall be built of copper tubing not less than ⅜ inch, O. D., nor larger than ⅝ inch, O. D., and shall be not less than 30 feet long. The coil shall have a drop of not less than ¾ inch per foot in order to secure continuous drainage, and shall be rigidly fastened within a water chamber of capacity ample to permit the complete submergence of the coil in a water bath. The water bath, to which cracked ice shall be added, shall be held at a temperature of not less than 32° F. nor more than 40° F., and the water bath shall be provided with an indicating thermometer midway between the top and bottom of the coil.

E. Accumulator:

The accumulator for each stage of compression shall hold at least one quart of condensate below the intake opening. Each accumulator shall have a baffle above the intake opening to prevent the condensate from blowing out through the gas escape connection. The bottom of the accumulator shall be of such shape as to permit complete drainage through the draw-off connection.

F. Drips:

A drip shall be placed before the vacuum pump to collect any oil or water that may be in the line, in order to protect the meter and other machinery from being stopped up with foreign substances. The bottom of the drip shall be of such shape as to permit complete drainage through the draw-off connections.

Notes:

(1) Connections between the various parts of the equipment may be tubing, rubber hose or pipe.

(2) The entire apparatus shall be constructed of the best materials, with finest workmanship, shall be maintained in good mechanical condition, and must be absolutely free from leaks under operating conditions.

(3) The above description of the test apparatus shall be construed to apply to both single-stage and two-stage compressing equipment.

2.—Procedure

BEFORE starting the compression test, let the machine run with the pressure on the meter constant and the pressure on the last stage accumulator at 255 lbs., until at least 20 cubic feet of gas shall have passed through the meter.

When at least 20 cubic feet of gas shall have been passed through the apparatus, the condensate therefrom shall be withdrawn completely from the accumulators without relieving the last stage accumulator pressure below 250 lbs. gauge pressure, and the test then started by quickly closing the accumulator draw-off valves and simultaneously reading the gas meter.

Either 13.2 or 26.4 cubic feet of gas at 4 oz. pressure corrected for the temperature shown by the meter thermometer to 60° F., shall be passed through the machine.

Note: Other temperature and pressure bases may be used by agreement between contracting parties.

A constant pressure of 250 lbs. gauge shall be maintained on the last stage accumulator by means of an escape valve provided on the top of the accumulator, and as soon as the required amount of gas has been passed through the apparatus, as stipulated above for the test, the apparatus shall be quickly stopped.

The pressure shall then be relieved from the last stage accumulator through the escape valve provided, at a rate not to exceed 50 lbs. per minute to a limit of 25 lbs. per square inch. If the gas has been compressed with a single-stage apparatus the condensate shall then be withdrawn from the accumulator into a graduated cylinder and the quantity and temperature of the contents be immediately determined. The temperature of this condensate shall then be steadily raised to 60° F., at a rate not to exceed 2 degrees per minute.

Where two-stage compressing equipment is used the contents of each accumulator shall be drawn off in separate graduated cylinders and the quantity and temperature of the contents of each graduated cylinder shall be immediately determined. The contents of the two graduated cylinders shall then be combined in a graduated cylinder or cylinders and the temperature thereof brought to 60° F., at a rate not to exceed 2 degrees per minute.

At least two tests shall be made with the given apparatus to determine the gasoline content of the gas.

3.—Computation of Yield

FOR a run of 13.2 cubic feet, the gallons of gasoline per thousand cubic feet of gas shall be computed by multiplying the cubic centimeters of condensate weathered to 60° F. by the factor 2, and dividing this product by 100.

For a run of 26.4 cubic feet, the gallons of gasoline per thousand feet of gas shall be computed by dividing the cubic centimeters of condensate weathered to 60° F. by 100.

If the results are desired in gallons of gasoline per million cubic feet of gas, the following formula shall be used:

264.2 B divided by A equals X gallons of fluid per million.

Where A is the total corrected volume of gas used in cubic feet; B is the total gasoline measured in cubic centimeters at 60° F., and X is gallons of gasoline per million cubic feet of gas.

HIGHLAND, ILL.—Merchants Oil Co. here has installed a vacuum auto tank cleaner with which old gasoline is taken out, filtered and then returned to customer's tank, according to J. G. Bardill, president. The equipment is loaned to the company's various stations.

Marines Have Situation Well in Hand In Fordney's Oil Company

By Ward K. Halbert
N. P. N. Staff Writer

CAPTAIN CHESTER FORDNEY of the U. S. Marines, after serving his country abroad for more than two years, in that time climbing from the humble rank of private, arrived at his home in Saginaw in the spring of 1920. Hardly had he greeted the family before his father, Congressman J. W. Fordney of Michigan, let him know he was assigned to a new post—company commander of the Fordney Oil Co., with a P. C. on Water street at the foot of Fitzhugh.

The captain's business experience added up to about nothing. Moreover the senior Fordney was not an oil man. He had been very successful in the lumber business and in politics, but he had only recently bought the J. H. Nickodemus Oil Co., and was in possession. To say the least, the Fordney Oil Co. started out unhampered by precedents. For lack of something better Chester Fordney installed a military organization, and after six years it is still functioning.

In the first place the captain began by employing ex-service men exclusively. There were two reasons for this. It was almost a patriotic duty to give a jobless soldier work in 1920 and 1921, and besides they fitted more conveniently into the young officer's ideas of organization. They understood his language and methods of dividing responsibilities. A marine clock is screwed to the wall over the captain's desk. It does not strike the hour like civilian clocks, but sounds off the bells by watches. The clock is a relic, salvaged from the derelict of the U. S. S. Memphis.

The oil company is not 100 per cent naval in it characteristics. The C. O. was a marine, so it partakes of the army customs also, like the "soldiers of the Sea." The uniform of filling station attendants is navy dungarees. "We even sell Navy gasoline," Mr. Fordney said, "We took that for our brand in 1920 and, even though the term lost its technical significance in the oil business, it still has a well understood meaning and suits our purpose especially well. Some people here in Saginaw call it 'Gob Gas.'"

SATURDAY morning is Commanding Officer's inspection day in the Fordney Oil Co., just as in the Army, Navy and Marine Corps. Captain Fordney covers the company properties in person, examining each filling station, truck and warehouse. Just preparatory to the week-end every item of equipment must be clean, grounds must be thoroughly policed, uniforms clean and decks scrubbed.

CAPTAIN CHESTER FORDNEY
Company commander of the Fordney Oil Co., Saginaw, Mich.

This inspection is conducted in a military manner. Attendants at stations and workmen at the plant have no idea what "the old man" is going to find fault with when they see him write something on a piece of paper. They never hear about it from him. The captain makes his criticisms to the officer in charge. He never usurps the authority of any subordinate. "I tell them what to do, not how to do it. It is their job to work out methods."

This company has two platoons, but they are in different departments. One is composed of "line" men and the other is motor transport. There are responsible officers in charge of both. They have full authority in proportion to their responsibilities.

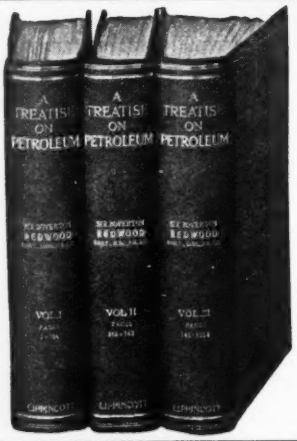
THE service station crew is the unit of organization in the Fordney command, like the squad in the army, with a corporal in charge and privates under him. The private is the junior service station man and the corporal is the senior attendant. The latter enjoys all the prerogatives of his rank. He has the choice of hours and of duties in case there is any choice, and he earns more money. He is responsible for the station and the private in the squad is answerable to him. It is up to the corporal's superior officer to keep him from making the private do all the work, if he happens to be disposed to shirk. But a "non-com" could not get away with that sort of thing for any length of time.

THESE men understand, being service men, that there are three kinds of rank; authority, dignity and pay. They know that a reduction in rank means a reduction in pay; that a suspension from duty is a demerit and a fine per se. Moreover, they understand that a transfer is no compliment, and when a private is moved from one job to another and replaced in the first job by a man of higher rank he knows his promotion has been postponed for some reason. Certainly no civilian pursuit can be as rigid as an army life. There is nothing autocratic about the superior officers and the organization, being small, permits of close personal contacts. Discipline is seldom resorted to, but military precision and punctuality are the outstanding features of the organization. A great many of the men are actually in the national guard and keep fresh on military developments. Something akin to a military salute is the habitual salutation—not prescribed however.

The man in charge of filling stations for the company is Second Lieutenant J. M. Brewster, Company F. of the Michigan National Guard. He ranks second lieutenant in the Fordney Oil Co., too. He is one of the spirits that keep the military tone in the business, for he was a top sergeant of marines during the war and after, serving under Captain Fordney in foreign service. It is only a habit for him to call the general manager "Captain" and it would be impossible for him to present the morning report in other than a military manner.

THE private in the transport corps is the truck driver. It is a smaller platoon than the filling station personnel comprises and is headed by a so-called non-commissioned officer in charge of transportation, Sergeant Charlie Nestle, a service man and a soldier in action and appearance. He drives a truck if he has to but he is almost always at the warehouse trimming cargo—ask any sailor what that means.

The military organization does not stop at the warehouse door. It extends into the office. Camp Adjutant George M. Hunt is in charge of the office. That is his job and nobody says to him nay. He hires his help, directs their work and is responsible for it. Stenographers, accountants, clerks and yeomen generally are under his command. Like Sergeant Nestle, Mr. Hunt came into the organization with the business, having first worked for the Nickodemus Co., before



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the military occupation. And like a great many adjutants, Mr. Hunt never had any military experience, but has fallen pleasantly into the spirit of the organization.

The only other officer in the company is of First Lieutenant's rank and a staff officer with no particular function, so far as the personnel is concerned. It is Ernest Fordney, the captain's brother who handles lubricating oil sales. He is in charge of all jobbing and big industrial accounts in town and out. He is secretary of the company while his brother the C. O. is treasurer as well as general manager.

J. W. Fordney, father of the two active men in the company, is given an arbitrary rating of Commander in Chief. As far as his sons know he has never been inside the company's office. He lets them run it and gives it no concern. In true generalship, he never questions methods as long as results are O. K. in recent months he has become interested in another oil venture, the Fordney Petroleum Co., a producing concern in the Saginaw field. He distinguished himself within the last week by completing a paying producer on the diamond of the local baseball park, causing a great stir of publicity.

IT seems probable that the military regime will hold sway in the Fordney Oil Co. as long as it remains in the family. Captain Fordney's youthful son is being trained in the traditions of the Corps. It could hardly be otherwise, for his mother is the daughter of Brigadier General Ben H. Fuller. She married Captain Fordney at Santo Domingo in April, 1919, while her father was commanding general of the Second Marine Brigade and acting Military Governor of the Dominican Republic.

Captain Fordney was not of the military police department of the Marines. He was of the Second American Division A. E. F. He enlisted in the Marines just after finishing the engineering course at University of Michigan in 1917. For a short while he worked for the Armoured Motor Car Co., of Philadelphia. In July, 1917, he became a Second Lieutenant of Marines by reason of his engineering ability and embarked for France in the spring of 1918 with the 88th company—a searchlight organization in the anti-aircraft service.

After the armistice, still only a first lieutenant, Fordney sailed for New York, but was ordered to Santo Domingo the day after he landed and spent a year in the tropics. There he received his captain's commission, was put in command of the 210th company and married Miss Dorothy Nelson Fuller. He is still in the U. S. Fleet Marine Corps Reserves and goes to active service every year. He will be at sea during April of this year.

KALAMAZOO, MICH.—L. C. Loveless, of the Sinclair Refining Co. here, states that his company has been awarded the contract for industrial oils by the Bryant Paper Co. here for the current year.

Bill Would Increase Production Tax

TULSA, Feb. 18.—Every two years the oil industry of Oklahoma is called upon to combat a number of measures brought before the state legislature. While the Marland conservation bill, opposed by practically all producers in the state, has had most public discussion, from a political standpoint the outstanding measure before the legislature is the proposal to increase the gross production tax on oil and gas from the present 3 per cent to 5 per cent.

The Marland bill is important and is receiving ample consideration of the industry, but it is less likely to be passed than is the increase in gross production tax. The legislature is always more interested in ways of raising money than in other measures.

The proposed tax raise is embodied in House Bill No. 122, by several members who come from counties that have no oil production. It has been set down for hearing on Feb. 14. Members of the Mid-Continent Oil & Gas Association have been asked to write to all lessors urging them to assist in the opposition to the bill, as it would affect lessors as well as producers.

In House Bill No. 120 it is proposed to extend the state income tax to corporations. The governor is urging the passage of this bill. Hearings were set on this for Feb. 7, 8, 9.

No Fatal Accident in 1926 At Whiting Refinery

CHICAGO, Feb. 18.—No fatal accident in 1926 was the record established at the Whiting, Ind., refinery of the Standard Oil Co. of Indiana. This information was released for publication by company officials on Feb. 10 and R. W. Stewart, chairman of the board, characterized the record as a great achievement in a letter to the management of the Whiting refinery, the company's largest plant.

The record is regarded as impressive in view of the fact that the average number of full time workers per month at the plant was 3778. The lost time cases per thousand workers per month averaged only 1.5 the report says. Safety work at the company's refineries is in charge of C. W. Smith, who for a long time has handled it as a part of the company's industrial relations activities.

New Service for Buses

TULSA, Feb. 17.—The Pure Oil Co. is selling gasoline and oil to motor buses by means of a traveling service station at Indianapolis, according to Pure Oil News.

A tank truck has been equipped with a gasoline pump and a 12-foot hose with quick shut-off nozzle. The truck meets buses at certain places on their runs in dull hours of the day and services them with gasoline and oil. It is used for regular tank wagon service during the remainder of the day.

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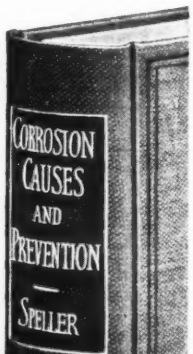
LUBRICATING OIL SALESMAN'S PRIMER

The "Lubricating Oil Salesman's Primer" is a new book by Claude Ettele, associated with one of the big oil companies in this country. The author's purpose is "to properly present a first view of the subject of lubrication and encourage the young salesman to study advanced works without which he will be unable to develop maximum efficiency in the services of his employers and of his customers."

The book takes up the manufacture of various lubricating oils and greases; tests by which oil and grease specifications are written; general discussion of lubrication problems in cylinders, turbines, internal combustion engines; power transmission machinery such as shafting; wire ropes; belts, gears, bearings, etc., driven machines such as air compressors, pneumatic tools, ice machinery, machine tools, textile machinery, paper mills, mine and quarry machinery.

"Lubricating Oil Salesman's Primer" also gives a standard line of lubricants, and specifies which oils or greases are applicable to the various kinds of machinery. This book is well worth its price of $3.00. Send for your copy today!



CORROSION—Causes and Prevention by Frank N. Speller is the result of 20 years' close study of the subject.

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Part II is devoted entirely to practical discussion of preventive measures. In the chapter on corrosion in the petroleum industry the author discusses refinery problems and methods of prevention of corrosion of pipe lines.

The depreciation due to corrosion in the petroleum industry is so great that its solution will probably mean the difference between profit and loss in the future. Mr. Speller in his book reduces the subject of corrosion to a science, and every petroleum engineer should have a copy.

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Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

How About Some Actual Figures on Savings?

THERE has been a great deal of useful work done by various investigators on corrosion problems in refineries and some valuable papers have been published on corrosion-resisting materials of construction for their solution. However, so far as we know there have been no figures published as to the actual savings in cracking and crude distillation equipment that are possible from the use of a corrosion-resisting metal.

Refiners are told that, notwithstanding the high cost of special alloy steels and other metals, they can earn profits by installing them on account of the greatly increased life of such equipment. But before installing a piece of equipment that costs perhaps three times as much as a piece made from ordinary steel, any refiner wants to be very sure that the savings he will reap will justify that extraordinary expenditure.

H. F. Perkins of the Gulf Refining Co., at the Institute meeting in Tulsa, gave some valuable information along this line and C. B. Callomon of the Allegheny Steel Co. and other metallurgists have added much to the knowledge of the subject. But it would be a great service to the industry if some one, refinery engineer, metallurgist or anybody else who has made a sufficiently long test of a piece of expensive non-corrosive equipment in actual service, would give the figures that show exactly the savings of such equipment balanced against the cost of it.

Controlling Operation to Prevent Corrosion

THE paper read at the A. I. M. E. meeting in New York by Clyde L. Smith, distillation engineer of the Pure Oil Co., indicates that at least a part of the solution of the corrosion problem, insofar as distillation of crude is concerned, may lie in controlling the distillation so as to avoid the temperatures at which the corrosive compounds are formed and the metal of the equipment is actively attacked. Mr. Smith states in his paper which was published in the Feb. 16 issue of National Petroleum News, that his company succeeds in avoiding corrosion almost entirely in crude distillation and fractionation by carefully holding the temperature outside of the range favorable to corrosion.

Investigates Bergius Process for Americans

A. D. SMITH, well known among western refiners a few years ago as refinery manager for the Milliken interests and author of the refining section of Day's Handbook of the Petroleum Industry, has recently returned to England from Germany where he investigated the Bergius process for large American oil interests. A full report of Dr. Bergius' process, delivered by the doctor himself at the recent coal conference in Pittsburgh, was published in National Petroleum News.

Mr. Smith, who has been a consulting petroleum technologist for the past six years, has been engaged abroad continuously for most of that time as consulting engineer of Cory Brothers & Co., Ltd. of Cardiff, Wales, one of the largest British exporters of coal, with rapidly growing oil interests as well.

Learning Refining in a Real Refinery

THE Tide Water Oil Co., New York, is one of the organizations that is helping in an important way in the education of technologists by making its Bayonne refinery a "field station." The inclusion of refineries among the plants where advanced engineering students get the actual shop experience required in their courses is a hopeful sign for the oil industry and will doubtless cause many of these young men to throw in their fortunes with the oil business rather than with other industries. And the refinery business needs them. Announcement comes from Massachusetts Institute of Technology that the first group of students of the fuel and gas engineering department have just completed their work at the Tide Water plant. One of the most important tests carried out was "A Heat and Material Balance on a Battery of Continuous Stills." Both Tide Water and Institute officials are reported as much pleased with the work done.

Burton Process Still Probably Holds Lead

DESPITE the rapid development and numerous installations of the newer cracking processes, it seems likely that the Burton process, the first cracking system to produce gasoline on a large scale, is still turning out more cracked motor fuel than any other process.

This is based on information given us by the Standard Oil Co. of Indiana for the N. P. N. 1926 Price Handbook and Refinery Directory. We asked all the companies for particulars about their plants, capacity, cracking capacity and so on. In answering these questions it was stated that Standard of Indiana has 294 Burton stills alone.

When it is considered that nearly all, if not all, of the Standard companies have some Burton stills, most of them large installations, it is apparent that they are turning out enormous quantities of gasoline every day.

Big Construction Program Under Way

HAVING just completed construction of six Cross cracking units with a capacity of 2000 barrels a day each at the Magnolia Petroleum Co.'s Beaumont, Tex., refinery, says the February issue of Magnolia Oil News, practically the same crew moved across the road and started work preliminary to the construction of 24 tower stills with their accompaniment of condenser boxes, tar coolers, receiving house and so on. Twelve run down tanks are being erected to serve the new equipment. E. E. Plumly, vice president of the company, is manager of refineries.

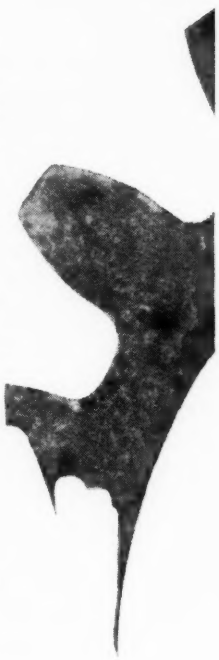
This is a

DO you *know* that nothing else has ever been produced that can successfully take the place of Castor Machine Oil for certain kinds of lubrication?

Do you *know* that, when used in the bearings of slow-moving parts—farm implements and some kinds of industrial equipment, for instance—Canfield Castor Machinery Oil just wraps around and around the bearing, maintaining its body under heat and wear, and keeping the surfaces perfectly lubricated?

Do you *know* that there's a regular market for Canfield Castors in *your* territory? You're making a nice extra profit if you're selling that market; otherwise you're missing business that properly belongs to you.

Canfield has been producing Castors, and jobbers everywhere have been selling them *successfully,* for many years. For extra profit, push Canfield Castors.



Canfield wants to serve you in any way possible, at any time. Our facilities are at your disposal. If you wish estimates and information, you will find this list of Canfield Products helpful in making up your specifications. We'll be glad if you write us, any time.

THE CANFIELD OIL COMPANY

Serving Jobbers Since 1886 *General Offices,* Cleveland, Ohio

Refineries: Cleveland, Ohio; Coraopolis, Pa.
Compounding and Grease Plant: Cleveland
Greater New York Plant: 285 Tonnelle Ave., Jersey City

Canfield

REAL PHOTOGRAPH

Here's a genuine, undoctored photograph that shows right out in the open just what happens when Canfield Castor Machinery Oil is put on. It doesn't run off.

And *it holds its body* under extreme wear and heat.

Try Canfield Castors for yourself with a sample which we will be pleased to send you. A word from you will bring it.

- ☐ Premium Motor Oils (100% Pennsylvania)
- ☐ Premium Tractor Oils (100% Pennsylvania)
- ☐ Canfield Filtered Motor Oils
- ☐ Western Motor Oils
- ☐ Western Tractor Oils
- ☐ Zero Oils
- ☐ Black Oils
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- ☐ Castor Machinery Oils
- ☐ Belt Dressing
- ☐ Soluble Oils
- ☐ Cutting Oils
- ☐ Viscous Neutrals
- ☐ Non-Viscous Neutrals
- ☐ Red Oils
- ☐ Filtered Cylinder Stocks
- ☐ Steam Refined Cylinder Stocks
- ☐ Petrolatums
- ☐ P. O. C. Gear Compound
- ☐ Zero Gear Compound
- ☐ High Pressure Lubricants
- ☐ Cup Greases
- ☐ Fibre and Sponge Grease
- ☐ Gear Shield
- ☐ Axle Grease
- ☐ Auto Soap
- ☐ Mine Car Greases
- ☐ Graphite Grease
- ☐ Crank Pin Grease

CASTOR MACHINERY OIL

MORE GALLONS PER SALE
Customers of Kanotex Stations have the "Fill 'em Up" habit. That means bigger profits for Kanotex Dealers. It costs the dealer no more to fill up a tank, than it does to put in five gallons; but there's a vast difference in the cash register at the end of the day.
KANOTEX
Petroleum Products
have acquired for themselves a unique place in the industry. They are jobbed by a selected class of jobbers, and retailed through the most representative filling stations in each community. Rare indeed is the jobber or dealer who, once havng handled the Kanotex Line, ever changes to any other. There can be but one answer—QUALITY—plus a character of Service that has become a by-word wherever Kanotex is sold.
Write, wire or phone for further information today to
The Kanotex Refining Co.
PHONE L. D. 4
ARKANSAS CITY, KANSAS
KANOTEX

CLASSIFIED ADVERTISING
will get results for you
no matter what you "want"

Turn to that page, with rates, at back of this issue.

Magnolia Pipeline Runs For January

HOUSTON, Feb. 19.—Magnolia Petroleum Company, pipeline department, announces from Dallas headquarters the following crude oil runs for January, 1927, which are shown in comparison with December:

	December	January
Hewitt-Graham	148,263.86	153,124.55
Healdton	197,635.87	209,384.71
Cushing	206,083.47	225,440.90
Yale	68,367.89	68,280.95
Cement	25,601.71	23,264.85
Duncan	47,674.04	46,866.97
Augusta	41,830.12	45,429.08
Walters-Beaver Creek	8,583.84	8,081.27
Burbank	55,112.93	46,996.47
Wewoka	658,308.72	285,650.14
Bristow	.....	.....
Seminole	.....	508,253.23
Total Okla.-Kans.	1,457,462.45	1,620,773.10
Archer	83,072.06	87,470.70
Burkburnett	78,439.13	75,985.34
Coleman	.....	107.18
Comanche	22,600.27	22,802.47
Electra	105,049.55	107,557.67
Corsicana Heavy	7,711.33	8,548.12
Corsicana Light	15,536.72	18,100.04
Henrietta	5,361.17	5,468.57
Iatan	1,412.75	.....
Luling	455,502.80	448,586.03
Lytton Springs	59,935.24	56,184.29
Mexia-Wortham	49,700.73	49,490.85
Mirando	135,381.64	156,489.20
Olden	16,098.51	16,189.55
Panhandle	264,028.70	421,794.04
Panola	356.20	563.64
Stephens	12,273.43	12,305.63
Thrall	1,683.84	1,590.90
Gulf Coast	25,791.58	31,525.74
Total Texas	1,339,935.65	1,520,759.96
Haynesville	3,584.97	3,821.41
Bull Bayou	34,129.68	38,659.46
Cotton Valley	26,689.61	34,500.30
Pine Island	35,728.66	39,908.91
Total Louisiana	100,132.92	116,890.08
El Dorado Light	37,413.19	32,343.36
East El Dorado	2,350.93	3,074.71
Smackover	136,535.50	150,778.80
Total Arkansas	176,299.62	186,196.87
GRAND TOTAL	3,073,830.64	3,444,620.01

OKLAHOMA—KANSAS

Report for January		Daily Average
Runs	1,618,217	52,201
Shipments	1,462,529	47,178
Stocks	3,284,287	.....

TEXAS

Wichita, Wilbarger, Archer	Runs	308,888	9,964
	Shipments	288,408	9,303
Petrolia	Runs	5,469	176
	Shipments	5,469	176
Eastland, Stephens	Runs	51,298	1,655
	Shipments	390,023	12,581
TOTAL STOCKS		901,900	

Helium Gas Line Approved For Nocona

HOUSTON, Feb. 19.—Announcement comes from Washington of approval given by the house of representatives to an appropriation of $563,000 for construction of a 25-mile pipeline from the Nocona field, which would connect with Petrolia facilities for handling helium-bearing natural gas. The proposed line is to be of 10-inch construction with 960 h. p. compressor station.

Gas from the Petrolia field, and probably after October 1 from the Nocona area, is utilized by the government plant at Fort Worth in manufacturing helium. U. S. Bureau of Mines estimates call for processing of about 9,000,000 cubic feet of gas daily at the Fort Worth plant, with recovery of about 200,000 cubic feet of helium.

The committee appropriation bill for the Bureau of Mines also carries $500,000 for "conservation and production of helium."

New Equipment for Plant Improvement

Personal Notes of the Manufacturers

National Petroleum News

Arthur G. McKee & Co., Cleveland, O., announce that M. R. Walton has been appointed sales manager of the refinery division of the associated engineering and contracting companies, the Widdell Engineering Co. and Arthur G. McKee & Co., designers and builders of refineries and refinery equipment Mr. Walton has been connnected with the refining and chemical industries for 15 years. He was eight years chief engineer of the Natrona plant of the Pennsylvania Salt Manufacturing Co. He is known to refiners through having been for the past four years general sales manager of the Wilson-Snyder Manufacturing Co., Pittsburgh, manufacturers of pumps.

* * *

Aqua Oil Service, Inc., 2 Lafayette St., New York City, engineers of the Aqua system of storing, handling and dispensing gasoline and oil, announces the appointment of Curtiss Main, formerly of the sales department of the Curtis Pneumatic Machinery Co., St. Louis and later account executive of Doyle, Kitchen & McCormick, Inc., as secretary of the Aqua company. Mr. Main will be in charge of advertising and sales promotion.

The principles of operation and advantages of the Aqua system in service stations, multi-floor garages and bulk plants, are described in two booklets recently published by the company.

* * *

Harry M. Runkle, president of the International Derrick & Equipment Co., Columbus, has been elected a director of the American Rolling Mill Co., Middletown, O., manufacturers of Armco iron. Mr. Runkle is also president and treasurer of the Superior Die, Tool & Machine Co. of Columbus and the Rising Sun Mining Co. He is secretary and treasurer of the Eastern Hocking Coal Co. and treasurer of the Battelle Memorial Institute at Columbus, one of the largest institutions in the country devoted to research and metallurgy.

* * *

Barber-Greene Co., Aurora, Ill., has put out a handsome booklet, "Ditching Snapshots and Records," describing the achievements of the company's ditching machine in digging through 19 to 24 inches of hard frost, brick pavement, macadam pavement up steep grades and under all sorts of hard conditions. The booklet is illustrated with photographs and digging cost figures are given.

* * *

Butler Mfg. Co., 13th & Eastern Ave., Kansas City, Mo., has moved its foreign department, which was formerly at 44 Whitehall St., New York City, to Kansas City.

United States Air Compressor Co., Cleveland, O., announces two new compressors designed to meet the needs of the modern station for a completely automatic compressor which will furnish volume air at high pressure for tire inflation, air lift greasing racks, oil and grease spraying equipment, washing and so on.

LB-4 is a two stage unit which furnishes a constant tank pressure of 165 to 200 pounds and has a displacement of 12 cubic feet a minute. The LB-6 is a single-stage, twin-cylinder unit furnishing constant tank pressure of 90 to 125 pounds and having a displacement of 16 cubic feet per minute Both units are equipped with three horsepower motors and are mounted on 60-gallon tanks.

* * *

The National Oil Gauge Co., Chicago, has put on the market the Oilmetre, which is described as an intrument, air operated which tells at a glance the amount of oil in a tank. Installation consists of mounting the gauge, which is enclosed in a suitable housing, on the wall and running the single quarter-inch pipe to the tank. The gauge uses two scales, one of which indicates the actual depth of oil in the tank and the other the number of gallons. The standard Oilmetre indicates up to 5000 gallons but it may be calibrated for any capacity of tank without affecting its accuracy, it is stated. It is also said that the intrument may be used for measuring oil, acid or alkali.

* * *

A. Y. McDonald Mfg. Co., Dubuque, Ia., has put out a pamphlet describing several new additions to the McDonald. These include the anti-freeze drain valve, Plate 817-G underwriters approved self-closing hose nozzle, complete line of oil service sets, racks and trays, the McDonald-Bean car washer and a line of wrenches, pipe cutters and so on.

* * *

Lincoln Electric Co., Cleveland, O., has sent out a leaflet describing the 1927 Lincoln "stable arc" welder. The underlying idea in the welded steel construction of the welder is to meet the severe conditions to which portable welding equipment is subjected, says the leaflet.

* * *

The Heil Co., Milwaukee, Wis., manufacturer of steel dump bodies, hoists and truck tanks, opened a branch office, sales and service station in Detroit, Mich., on Feb. 15. Roy L. Diercksmeier, formerly manager of the company's branch at Minneapolis and St. Paul, will be in charge of the Detroit office.

General Electric Co., Schenectady, N. Y., announces a new type of induction motor claimed to be simpler to operate than the ordinary squirrel cage motor. A complete line of the new motors, which are designated Type FT, has been placed on the market. The range of size is from seven and a half to 50 horsepower. The announcement says the new motor is suitable for use wherever a squirrel cage motor with compensator has been used. It is designed to start on full voltage giving slightly higher starting torque but about the same starting current as the ordinary squirrel cage started with the compensator connected to the 80 per cent tap.

* * *

Air Reduction Sales Co., 342 Madison Ave., New York City, has off the press catalog section No. 6 Airco-Davis-Bournonville oxygen manifolds for pipe line distribution of oxygen and acetylene to welding and cutting stations. Constant supply of gases under controlled pipe line pressure is assured and the labor and expense of distribution and collection in the plant are eliminated, the company states. The manifolded oxygen cylinders reduce cost of handling individual cylinders and eliminate interruption of work in changing cylinders and regulators.

* * *

An automatic compensator of dust-proof design for high voltage service has just been developed by the General Electric Co., Schenectady, N. Y., for use where dust is excessive. The device has a maximum rating of 65 amperes at 2200 volts. It has a removable back cover which gives access to current and auto transformers, wiring and contactor operating mechanism.

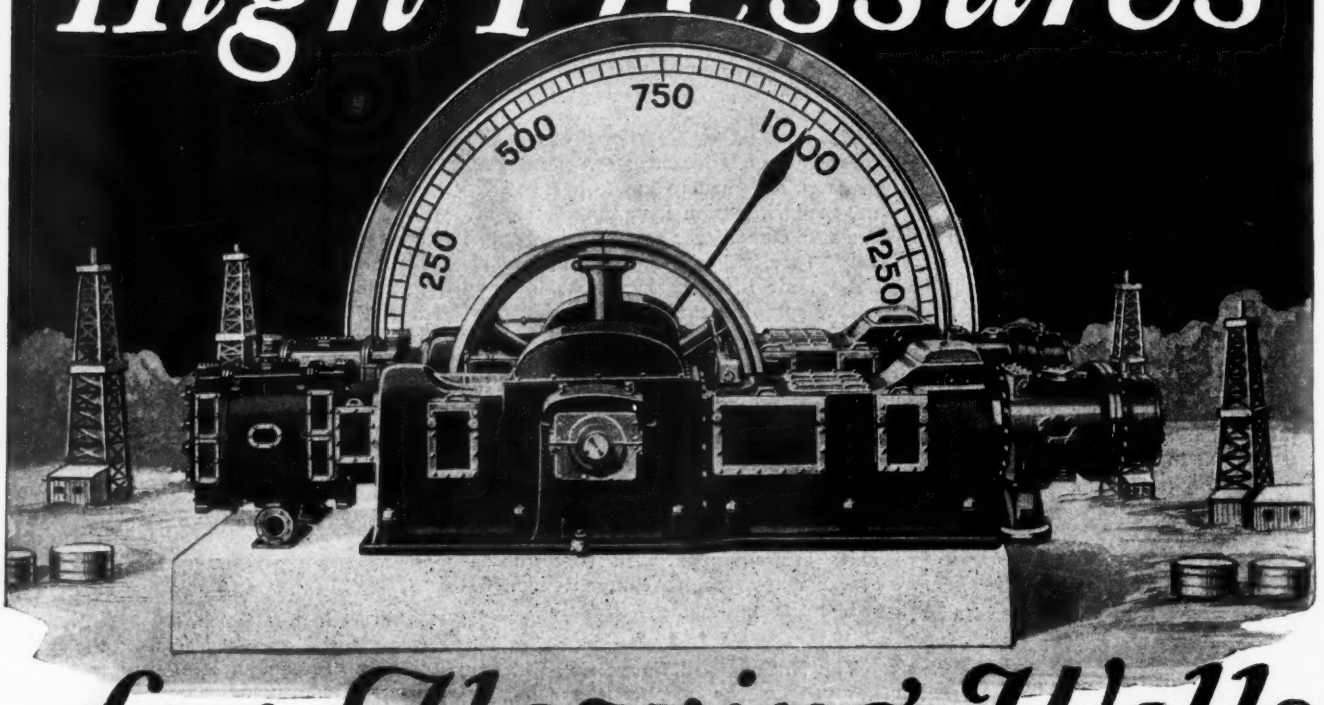
* * *

The Hill Clutch Machine & Foundry Co., Cleveland, has recently appointed Charles C. Phelps, Paterson, N. J., as sales engineer for metropolitan New York and northern New Jersey districts. Included in its line of power transmission devices are the Cleveland type oil-film bearings, Smith type friction clutches, steel arm automatic belt tighteners, spur gears, speed transformers and flexible couplings.

* * *

Preferred Utilities Co., New York, recently gave a dinner and entertainment called "Salers Follies" on the U. S. S. Illinois moored in the Hudson river. John Philip Sousa was the guest of honor and there were other notable speakers.

High Pressures



for Flowing Wells

Designed and built *specifically* for high pressure work of flowing wells.

Easily handles the high pressure necessary to start flow of well.

Quick delivery can now be assured because of increased production.

BESSEMER developed and perfected the high pressure compressor for flowing wells—and it's only Bessemers that have been thoroughly time tried and field tested on high pressure work. The first direct driven compressor for flowing oil by compressed gas or air in the Eldorado, Ark. field was a Bessemer, and today many of these high pressure Bessemers are on this work. Now that the Seminole, Okla. field has found it necessary to get the oil to the surface quickly and economically they too are turning to high pressure Bessemers as the proven standard for flowing wells at high pressures.

The high pressure Bessemer Type Ten Compressor is designed and built *specifically* for flowing wells at high pressures. Special cylinders for handling high pressures are mounted on, and direct connected to, a 165 H. P. twin Type Ten bed plate. The entire unit is constructed throughout with a wide margin of excess strength to insure a large factor of safety even at the maximum pressure capacity.

A high pressure Bessemer can be used either on individual wells or in a central plant which operates a number of wells, and however used, one of these Bessemer units will give a higher pressure and cost less on the basis of pressure delivered, than any other compressor, or series of compressors, available.

Play safe on your high pressure requirements! Insist on the compressor that has been *proved* by performance on high pressure work—

One high pressure Bessemer can be used either on an individual well or in a central plant to handle a number of wells, depending on conditions.

Sturdy, economical, highly efficient, and dependable—all proved by performance in the field on high pressure work.

THE BESSEMER GAS ENGINE COMPANY
70 York Street ∴ ∴ Grove City, Pa.

That's

BESSEMER

Our Industry—A Page of Facts and Personalities

National Petroleum News

By Paul Wagner

FOR years the Rev. T. H. B. McCallister, superannuated Baptist minister, preached the gospel of "Seek ye first the Kingdom of God and His righteousness and all these things shall be added unto you." Now, in his 75th year, he has been blessed with an oil well on his farm near Carbon, Eastland county, Texas. The well, which was recently completed by Thomas & Reynolds of Fort Worth and the Amerada Petroleum Corp., made 40 barrels an hour, initial production, after a shot of nitro-glycerin.

Eastland county landowners overlooked in the first oil boom that hit the general Ranger territory, are now coming in for returns from "combing" operations resulting in the finding of rich spots adjacent to earlier development areas. Among them are Mrs. A. M. Ramsower, who scraped out a meager living for herself and orphaned children on the barren hillsides of a farm north of Eastland. She plowed, built fences and otherwise performed a man's work while neighbors a few miles away became rich from their oil royalties.

Bonuses paid for leasehold rights on her land about paid the taxes for several years, but that was all. Now she is living in comfort from royalties paid on oil recovered from a well completed several months ago by the Col. Robert D. Gordon interests.

* * *

ROXANA Petroleum Corp. has moved two more crews of torsion balance operators into west Texas territory from the Gulf Coastal region. They will attempt to measure structural conditions in the sub-surface by geo-physical means. Members of the two crews include Frank Goldstone, in charge, P. L. Marquess, Ray Oliver, F. Kaekbusch, W. H. Spocek, Ernest Hafersick, Olan Shanks, H. Lighton, J. A. Hill, all of Houston, and Jim Scriba, W. Petty, S. Y. Smith, J. Cornelius, William Morrison, H. Phillips, and E. R. Gibson, from San Antonio.

* * *

MID-CONTINENT Petroleum Co., formerly Cosden & Co., of Tulsa, is the latest Oklahoma interest to enter the west Texas territory with a zone office at Midland. E. H. Stafforth is in charge at Midland, where offices will be in the Wilkinson building.

* * *

HERB E. SCHAFER, assistant superintendent in the Seminole district for Pure Oil Co., is following in his father's footsteps. He is a son of the late Dan Schafer, formerly general superintendent in the Pure's southwestern division.

HARRY M. SAMPLE

ONE wouldn't think to look at the accompanying picture of Harry M. Sample that he would be guilty of killing two deer in a single crash of his automobile. Frankly, he didn't intend to do it; the casualties resulted when Sample swerved his car to avoid striking a doe in the act of crossing the road near Fredericksburg, Texas. Two other deer following the doe got in the path of the car before he saw them. Sample, who formerly was in charge of scouting work of the Marland Oil Co. of Texas at San Antonio, is now stationed at San Angelo in the land department.

* * *

DONALD C. BARTON, chief of the geo-physical staff of the Rycade Oil Corp., is serving the Houston Geological Society as its president for the year 1927. Miss Elizabeth Stiles of the Gulf Production Co., is vice-president. The secretary-treasurer is John Vetter, a geologist by training, who is in charge of land department work for the Rio Bravo Oil Co.

The Fort Worth Geological Society elected J. Elmer Thomas, consulting geologist and member of the operating firm of Thomas & Reynolds as its 1927 president. Other officers include Robert S. Burg, consulting geologist, as vice president; Walter R. Berger, chief geologist of the Marland Oil Co. of Texas, re-elected as secretary-treasurer. Fred B. Plummer, chief geologist in Texas for the Amerada Petroleum Corp., J. Earl Brown, chief geologist for the Tidal Oil Co., in Texas, and Mr. Burg constitute the program committee.

IT is impossible for Matthew C. Brush, chairman of the board of directors, Barnsdall Corp., and member of the executive committee of the Simms Oil Co., to count on his two hands the number of companies in which he is either an officer or a director. In fact if there were four of him there still wouldn't be enough fingers to admit of a full count.

A recent report showed him to be an officer or a director in 47 companies. Included in the group are such diversified interests as the American International Corp., of which he is president and chairman of the executive committee; International Mercantile Marine, director; United States Rubber Co., director; New York Rapid Transit Co., director; Republic Iron & Steel Co., director; Petroleum Chemical Corp., director, and many others.

Mr. Brush holds engineering degrees from Armour Institute of Technology and Massachusetts Institute of Technology. He was born at Stillwater, Minn., and received his high school education in Chicago. After leaving school he got into railroad work after trying less interesting jobs. From a machinist he advanced rapidly to executive positions, afterwards branching into other important industries.

* * *

PRODUCING department changes in the Magnolia Petroleum Co. include transfer of Gus F. Jesse from Mirando City, Texas, where he was warehouseman under Superintendent A. H. Proctor, to Wewoka, Okla., where he will act in similar capacity under Superintendent C. L. Gladden; transfer of Grover C. Walton, Breckenbridge warehouseman under Superintendent J. M. Dawson to Mirando City; transfer of Oscar T. Norvell, chief clerk at Louann, Ark., under Superintendent J. M. Courtney, to Iatan district, Westbrook, Texas, where he will act in similar capacity under Superintendent C. V. C. Bradley.

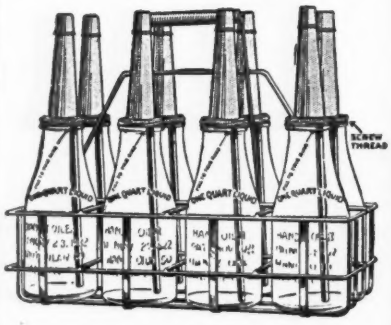
* * *

H. H. LEE, who had been in charge of west Texas and Panhandle operations for the Republic Production Co., with San Angelo headquarters, has resigned from official positions with various companies of the J. S. Cullinan group. His future plans have not been announced, but it is understood he will continue to live at San Angelo. Besides being vice president of the Republic Production Co., Mr. Lee was president and director of the Federal Petroleum Co., operating in Louisiana and Arkansas fields; and director of the Papoose Oil Co., operating in Oklahoma. Mr. Lee retains his stock interest in the companies mentioned.

* * *

ARTHUR MANDELL, who at one time was in charge of producing activities in South Texas for the Sinclair Oil & Gas Co., is now in charge of field operations centering at Houston for the Humphreys Corp. He succeeded the late Fred B. Tough, general superintendent and field technologist, who lost his life in an oil field fire at Sour Lake, Texas, in October.

Display Your Lubricating Oil



Increase Your Profit

OIL companies have spent thousands of dollars obtaining desirable locations for their stations, and have spent enormous sums of money displaying their gasoline signs, but have overlooked the most profit-making product they handle, lubricating oil.

Display your lubricating oil in Handy Oilers placed on Handy Oiler's display stand and increase the most profitable part of your business, the sale of lubricating oil.

Write us for prices on this equipment.

Manufactured by

THE HANDY OILER CO.

Danville, Indiana

The Tret-o-lite Process is RAPID!

Time required only for mixing and settling. Mixing often completed during normal flow of oil from well to tank. Settling takes only the time for normal oil and water to separate.

WM. S. BARNICKEL & CO.

St. Louis, Mo.

Here & There

National Petroleum News

—Photo by Matzene Studio

C. O. FRISBIE

Newly elected president of Commerce Petroleum Co., Chicago, recently of La Salle Extension University

George G. Pratt, formerly salesman for the Standard Oil Co. of Indiana in the Mankato, Minn. district, resigned on Jan. 1 to become salesman in South Dakota for the Skelly Oil Co. Mr. Pratt lives at Pipestone, Minn.

Another addition to the Skelly sales force is Jim Gann, also a former Standard Oil salesman, who will represent the former company in southern Minnesota.

* * *

James L. Farrell, formerly with the Parco, Wyo., refinery of Producers & Refiners Corp., Denver, in its engineering department, and lately in the engineering department of the Pan-American Petroleum & Transport Co. at New Orleans, returned on Feb. 1 to the P. & R. engineering forces.

* * *

George A. Slough, Lapeer, Mich., has been appointed agent in Davison territory, in addition to Lapeer territory, for the Standard Oil Co. of Indiana, Chicago.

* * *

C. C. Stoll, president of Stoll Oil Refining Co., Louisville, Ky., left during the first week of February for a three months' trip to South American points. Mrs. Stoll accompanied him.

E. A. Johnson, who has been general manager for the Texas Mexican Oil & Refining Co. at Laredo, Tex., has resigned to become general manager of the Mirando City, Tex., refinery of Misko Refineries, Laredo, Tex., effective Feb. 1.

E. G. Mehlburger, who has been oil treater for the Texas Mexican plant, succeeds Mr. Johnson as superintendent.

* * *

D. L. Olsen, salesman at Little Falls, Minn. out of the Minneapolis division of the Standard Oil Co. of Indiana, reports that Andrew Stuntebeck is the new bulk station agent at Rice, Minn. and Jay C. Mowan is a new addition at Royalton, Minn. for the Standard.

* * *

D. E. Kelley, formerly manager of the Tulsa branch of R. V. Aycock Co., has been elected vice president and general manager, with headquarters at Kansas City, Mo.

L. A. King has been promoted to assistant manager at Tulsa, effective Jan. 1.

* * *

William A. Stoll, secretary and treasurer of Stoll Oil Refining Co., Louisville, was elected a director of the Louisville Board of Trade at the recent annual meeting of the directors. Directors are elected for a term of three years.

* * *

J. F. Giefer, secretary of the Craig Oil Refining Co., St. Paul, Minn., is now one-fourth owner of the company. This interest was bequeathed to him in the will of the late Henry Max, who was president and sole owner.

* * *

J. R. Maulcook, Des Moines, Ia. representative of the Wadhams Oil Co. for the past five years, has severed his connections with that company and is now located in Peoria, Ill., with offices in the C. I. Power Co.

* * *

Charles H. Biggs was appointed agent at Oklahoma City, Okla. on Jan. 1 for the Barnsdall Refining Co., through Jeff T. Boucher, manager of the Oklahoma division, which has its headquarters at Tulsa.

* * *

P. R. Capelle, Rocky Mound, N. C., was recently appointed general salesman in the Greenville, N. C. district of the Standard Oil Co. of New Jersey, which district is under the supervision of F. A. Jones.

* * *

Edward Stenger, president of the Northwestern Petroleum Co., Rapid City, S. D., has returned from an Omaha, Neb. hospital where he underwent an operation. He is recovering now.

NATURAL GASOLINE

VOLATILITY

Perfect motor performance under varied climatic conditions depends, primarily, upon the ***volatility*** of the fuel.

Quick starting in cold weather, smooth acceleration and motor performance all depend upon the ***volatility*** of the fuel used.

NATURAL GASOLINE IS CONCENTRATED VOLATILITY

By blending NATURAL GASOLINE with refined gasoline in proper percentages to meet climatic conditions, a motor fuel can be built to give perfect results.

Interesting facts concerning the values of NATURAL GASOLINE are steadily being developed by our Research Department. A request for bulletins covering this work may be had upon request addressed to Research Department, Association of Natural Gasoline Manufacturers, Cosden Building, Tulsa, Oklahoma.

ASSOCIATION OF NATURAL GASOLINE MANUFACTURERS

RESEARCH DEPARTMENT ASSOCIATION OF NATURAL GASOLINE MANUFACTURERS

GULF Refining Company

General Sales Offices
PITTSBURGH, PA.
District Sales Offices
New York, Houston, Atlanta, Boston, New Orleans, Tampa, Philadelphia

REFINERS OF OKLAHOMA TEXAS AND LOUISIANA

PETROLEUM

REFINED OIL
GASOLINE
NAPHTHA
GAS OILS
PARAFFINE WAX
ASPHALT

Fuel Oil--Lubricating Oils

CYLINDER ENGINE
CORDAGE

RED AND PALE PARAFFINE OILS

New Publications

Oil & Gas Forms

Cyclopedia of Oil and Gas Forms, By Richard Leroy Benoit, 634 pages, for sale by National Petroleum News, Cleveland. Price $10.00.

THIS compilation was made, the author says in the preface, to meet the needs of the oil industry which has become highly complex. The forms contained in it are mostly those in successful use which were drafted to fulfill the interpretations and definitions of courts of last resort. The author concludes the preface as follows:

"Many of the industry's most able legal counselors and leading operators and producers, including the attorneys and officials of the larger and smaller oil and gas companies and the independent operators, are responsible for the inception and preparation of these forms, and this volume is compiled in the hope that a more general use of interpreted and approved oil and gas forms may be encouraged, in consequence whereof many expensive and extended controversies may be avoided by the operator and his discharge of the perplexing functions of the petroleum industry facilitated."

The first chapter contains oil, gas and mineral lease forms in use in Arkansas, California, Colorado, Indiana, Kansas, Kentucky, Louisiana, New Mexico, Ohio, Oklahoma, Oregon, Pennsylvania, Texas, Utah, Washington, West Virginia, and 13 special forms, either for particular fields or those used by some of the larger companies.

The following chapter headings indicate the remaining contents of the volume: General and special clauses and stipulations in leases and assignments; corrections, amendments, ratifications and extensions of and agreements, supplementary to oil and gas leases; instruments relating to rentals and rental payments; releases of oil and gas leases; assignments, single group, corrections, of leases; sales of mineral rights, royalty deeds and other instruments relating to royalty and mineral rights, rights of way; escrow agreements and options; contracts for the sale, purchase and delivery of producing and non-producing oil and gas leases; bonds; mortgage on mineral rights and instruments incident thereto; surface leases; reservations of oil, gas and minerals; quitclaim and correction deeds; affidavits; powers of attorney; corporate and association (trust) forms; personal injury and workmen's compensation forms; transfer and division orders; contracts for the sale, purchase and delivery of oil, gas and casinghead gas and gasoline; well drilling contracts; title forms; miscellaneous forms, and

proof and acknowledgement of signatures.

There is an appendix covering certain requirements of the jurisprudence of Louisiana, Arkansas and Texas involved in the writing and execution of deeds, leases, assignments, mineral sales, correction, and quitclaim deeds, affidavits and other instruments.

S. O. Indiana Teaches Bus and Truck Lubrication

CHICAGO, Feb. 18.—Proper lubrication and its relationship to successful operation of truck and buses, is another addition to the educational system of the Standard Oil Co. of Indiana. It is being taught to members of the company's service staff who will be sent into the field as service engineers to advise truck and bus owners of lubrication problems.

A training course in truck and bus production was given to 36 members of the staff on Jan. 24 and 29 at the White Co.'s factory at Cleveland, O. These men were in charge of W. W. Cook, lubrication engineer of the Standard's railway sales department here.

Officials of the White company who addressed the men included Walter C. White, president; Thomas H. White, vice president and general manager; H. C. Marble, vice president in charge of service; R. M. Hidey, works manager; G. W. Smith, Jr., technical assistant to the vice president; A. J. Scaife, chief field service engineer; and W. H. Swink, chief inspector.

Members of the training class included J. F. Downing, A. C. Bradley and N. D. Scott, all of Chicago, and the following division representatives:

Central Division: L. M. Sands, Decatur, Ill.; L. M. Bolin, Joliet, Ill.; W. H. McConighan, Milwaukee, Wis.; Lloyd Snyder, Peoria, Ill.; E. E. Woods, St. Louis; C. Hansen, Green Bay. Wis.

Eastern Division; L. Y. Deuchler and G. K. Graves, Detroit; J. H. Price Grand Rapids, Mich.; W. R. Kester, Indianapolis; B. S. Trombley, Saginaw, Mich.; W. D. Creager and W. C. McNamara, South Bend, Ind.

Northern Division R. A. Hansen, Duluth, Minn.; Ed. Rosengreen, Fargo, N. D.; A. J. Flannery, Huron; R. F. Brown, La Crosse, Wisc.; H. A. R. Peterson, Mankato, Minn.; P. A. Beebe, D. E. Higgins and P. L. Sheaff, Minneapolis; W. B. McKee, Minot, N. D.; E. A. Lohman and M. E. Calender, Sioux City, Ia.

Western Division: E. J. Newell and J. R. Couplin, Davenport, Ia.; H. O. Smith, Des Moines, Ia.; B. J. Brooks, Kansas City, Mo.; C. W. Simmons, Mason City, Ia.; Porter Rhodes, Quincy, Ill.; C. F. Bocher, St. Joseph, Mo.; H. E. Faulkner, Wichita, Kan.; H. P. McNaughton, South Bend, Ind.

OSAGE, WYO.—Suitable weather is being awaited here for drilling of approximately 50 wells in the Osage field. Wildcatters are coming in because of several wells which have been brought in recently, according to reports.

CHAMPION

CHAMPION AIR SERVICE TOWERS

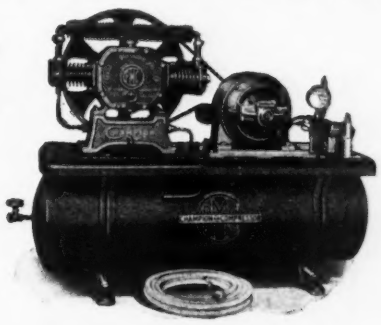
Built in four types—Air only; Air and Light; Air and Water; Air, Water and Light. Simple in design and fool-proof. No delicate mechanism, springs, heavy weights or oil checks to cause trouble—minimum of working parts.

There is a type to fit every service station need. They're all automatic—built in Two-Stage and Single-Stage types—and with such features as:—

Ball-bearing Main Bearings
One-piece Cylinder and Head
Rigid Piston Assembly
Trouble-proof Plate Valves
Automatic Pressure Unloader
Automatic Controller
Sliding Motor Base
Ventilating Intercooler
Positive Oiling System
Patented Filtering Trap
Fan Blade Flywheel
Non-pulsating Check Valves

Here's the "N-13" Automatic Two Stage Unit

¾ H. P.
32 Gal.
Tank
200 lbs.
W. P.



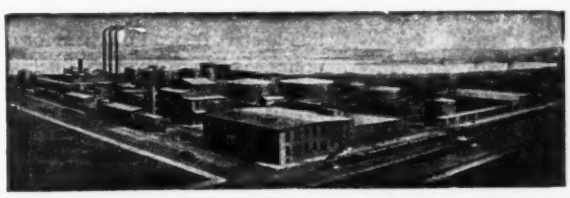
Equipment Includes: Compressor with fan fly-wheel, clear vision oil gauge, filtering trap, check valve, safety valve, air gauge, automatic electric controller, automatic pressure unloader, belt and automatic belt idler, motor with adjustable sliding motor rail, all mounted on metal base; tank, needle valve and 25 ft. air hose and chuck with fittings all complete, ready to run when wired to electric current.

It will pay you to get our complete catalog.

CHAMPION PNEUMATIC MACHINERY CO.
8168 So. Chicago Ave. Chicago, U. S. A.

Single and Two Stage
AIR COMPRESSORS

Established 1862
A. D. MILLER SONS COMPANY



MILLER'S OIL REFINING WORKS

REFINED PETROLEUM, GASOLINE, NAPHTHA, LUBRICATING OILS, MILL GREASE, &C.

PIONEER REFINERS OF PENNSYLVANIA OIL

PITTSBURGH PENNSYLVANIA

"DEFIANCE"

UNDER THE SKIN

THE skin of a steel barrel is the "specification". It covers gauge of steel, size, shape, style and perhaps color of paint to be used.

But under the "skin" you find the character, the integrity, the ideals of the steel barrel manufacturer—and these are more important than specifications.

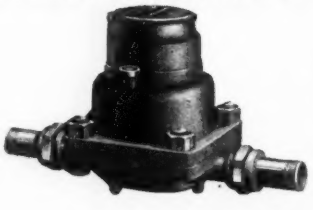
Have you ever heard of a Defiance Steel Barrel not living up to *MORE* than the specifications called for?

Neither have we.

THE AMERICAN STEEL PACKAGE CO.

Defiance, Ohio

RELIABILITY COMES FIRST



Year after year, users of Niagara Oil or Gasoline Meters depend on them for reliable measurement of petroleum products in any quantity. Their accuracy is constant---the meters are simple and trouble proof---installation is easy. Write us for catalog.

NIAGARA OIL METERS

Built Since 1892 By

BUFFALO METER COMPANY

2889 Main Street :-: :-: **Buffalo, N. Y.**

New Patents

Production

Drill Collar for Hydraulic Rotary Drills.—Loran E. Nebergall, Denver, Colo. Filed Mar. 5, 1923. No. 1,616,666.

Safety Connecting Link.—Oscar C. Staples, Tulsa, Okla. Filed June 28, 1926. No. 1,616,766.

Pumping Mechanism and System.—James A. Warren, Denver, Colo. Filed Dec. 26, 1923. No. 1,616,773.

Pumping Mechanism and System.—James A. Warren, Denver, Colo. Filed Sept. 20, 1924. No. 1,616,774.

Pipe Stopper.—John W. MacClatchie, Compton, Calif. Filed Jan. 3, 1925. No. 1,616,978.

Deep-Well-Pump-Operating Mechanism.—John W. MacClatchie, Compton, Calif. Filed Jan. 18, 1926. No. 1,616,979.

Sectional Derrick Leg Clamp.—Walter F. Speakman and Guy E. Crockett, Drumright, Okla. Filed July 14, 1926. No. 1,616,995.

Well Drill.—Oscar Martin Carter, Houston, Tex. Filed Jan. 8, 1924. No. 1,617,043.

Oil-Well-Tool Operator.—Charles T. Dougherty, Lemoore, Calif., assignor of six fifty-fifths to Hattie E. Dougherty, six fifty-fifths to E. H. Dougherty, and six fifty-fifths to F. C. Dougherty, all of Huntington Beach, Calif., six fifty-fifths to C. C. Campbell, Coalinga, Calif., six fifty-fifths to R. L. Johnston, Santa Barbara, Calif., three fifty-fifths to P. A. Campbell, Long Beach, Calif., three twenty-fifths to W. W. Smith, two twenty-fifths to J. H. Dunaway, two twenty-fifths to Ray M. Wagner, two twenty-fifths to Clarence Wagner, and one twenty-fifth to Ethel G. Smith, all of Fresno County, Calif. Filed Dec. 3, 1923. No. 1,617,303.

Refining

Cracking Liquid Hydrocarbons.—Hans O. Swoboda and Earl M. Richards, Pittsburgh, Pa., assignors to H. O. Swoboda, Inc., Pittsburgh, Pa., Filed July 6, 1922. No. 1,616,515.

Method of Cracking Oil.—Frank E. Wellman, Kansas City, Kans. Filed Mar. 20, 1923. No. 1,616,521.

Process of Making Aluminum Chloride.—George L. Prichard and Herbert Henderson, Port Arthur, Tex., assignors to Gulf Refining Co., Pittsburgh, Pa. Filed Mar. 3, 1922. No. 1,616,549.

Condenser.—Raymond B. Millard, Los Angeles, Calif., assignor to Southwestern Engineering Corp., Los Angeles, Calif. Filed Mar. 12, 1924. No. 1,616,701.

Still Cleaner.—James William Booth, Barnsdall, Okla. Filed Feb. 26, 1924. No. 1,616,777.

Distilling and Refluxing Unit.—Harry H. Armstrong, Los Angeles, Calif. Filed Dec. 26, 1923. No. 1,616,840.

Evaporator.—Joseph Price, New York, N. Y., assignor to The Griscom-Russell Co., New York, N. Y. Filed June 12, 1923. No. 1,617,081.

Film-Type Sectional Evaporator.—Joseph Price, Stapleton, N. Y., assignor to The Griscom-Russell Co., New York, N. Y. Filed Mar. 3, 1925. No. 1,617,982.

Heat Exchanger.—Joseph Price, New York, N. Y., assignor to Griscom-Russell Co., New York, N. Y. Filed Sept. 29, 1925. No. 1,617,083.

Bent-Tube Evaporator.—Russell C. Jones Bronxville, N. Y., assignor to The Griscom-Russell Co., New York, N. Y. Filed Sept. 16, 1921. No. 1,617,119.

Pressure Still Heating Furnace.—John E. Bell, Brooklyn, N. Y., assignor to Sinclair Refining Co., Chicago, Ill. Filed Jan. 28, 1922. No. 1,617,297.

Miscellaneous

Furnace Apparatus.—John E. Bell, Brooklyn, N. Y., assignor to Combustion Engineering Corp. Filed Sept. 16, 1922. No. 1,616,675.

Carbon Black and Process and Apparatus for Producing Same.—Chauncey Matlock, Brooklyn, N. Y., assignor to Monroe-Louisiana Carbon Co., Monroe, La. Filed June 2, 1921. No. 1,617,071.

Process and Apparatus for Producing Carbon Black.—Chauncey Matlock, Brooklyn, N. Y., assignor to Monroe-Louisiana Carbon Co., Monroe, La. Filed July 21, 1921. No. 1,617,072.

Apparatus for Separating Particles from Gases at High Temperatures.—Chauncey Matlock, New York, N. Y., assignor to Monroe-Louisiana Carbon Co., Monroe, La. Filed Nov. 16, 1921. No. 1,617,073.

New Stations Built or Being Built

Detroit, Mich.—National Oil Corp., with headquarters here at 11312 West Warren ave., has just incorporated and will build or purchase a chain of filling stations and also build bulk storage, according to A. H. MacDonald, president. Gasoline, fuel and lube oils will be handled.

* * *

Lebanon, Pa.—Atlas Gasoline Co. will build bulk and service station and is seeking equipment and storage of 30,000 gallons.

* * *

Ironton, O.—Stern Bros., real estate and theatre men here, will erect $5,000 filling station at Second and Lawrence streets.

* * *

Des Moines, Ia.—Roxana Petroleum Corp., St. Louis, plans to erect several service stations here, it is reported.

* * *

Wahoo, Neb.—Ray and Raymond Malloy will build service station at Cedar Bluffs.

* * *

Washington, N. C.—Standard Oil Co. of New Jersey is erecting bulk station here.

* * *

Brookville, Ind.—Wes Cooksey Oil Co. is building two service stations here.

* * *

Fort Smith, Ark.—Fisk Tire & Supply Co. purchased property for filling station.

* * *

McCook, Neb.—White Eagle Oil Refining Co. seeks property for filling stations.

* * *

North Platte, Neb.—Standard Oil Co. of Nebraska will build service station.

* * *

Joliet, Ill.—Bulk station is being built here by George C. Peterson Co.

* * *

Henry, Ill.—McNabb & Henry are building two bulk stations here.

* * *

Prescott, Ark.—L. J. Harrell is building garage and filling station.

* * *

Palmer, Neb.—John Hartford will erect filling station.

* * *

Paris, Tex.—Continental Oil Co. to build filling station.

* * *

Beatrice, Neb.—Continental Oil Co. to build filling station.

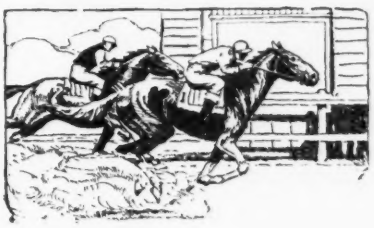
* * *

Jacksonville, Tex.—T. A. Hunt to build filling station.

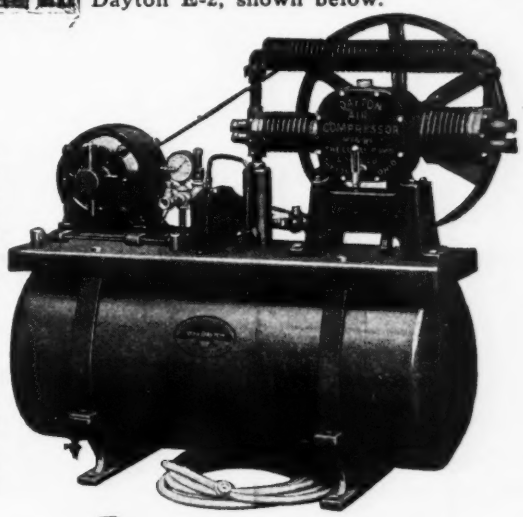
* * *

Fayette, Mo.—C. C. Daniels to erect filling station.

The Two That Are "Favorites"



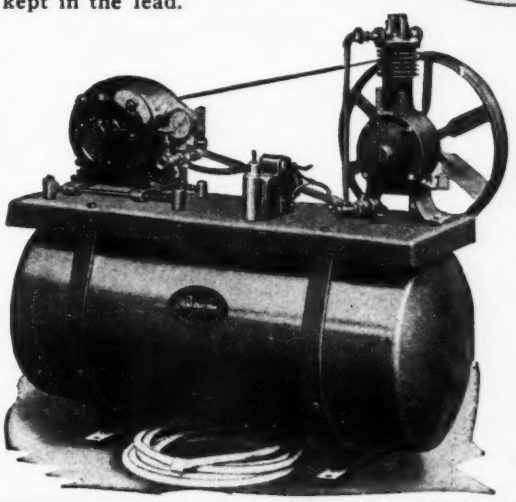
In the race for compressor supremacy, just as in the running races on the track, two factors combine to mark the favorites—Speed and staying powers. Measured by these factors, the two favorites for first place in the "Compressor Stakes," are the Dayton G., and the Dayton E-2, shown below.



Dayton—Style G

This is the only Two-Stage Compressor in the world which is built without a connecting rod or crosshead pin. No bolts or cotter pins to come loose. Nothing to get out of order. Oil it occasionally and forget about it. Runs for a lifetime.

A self-aligning bearing in this type (patent applied for) is something new in compressor construction. Dayton Air Compressors must be kept in the lead.



Dayton—Style E-2

A single stage Air Compressor with ½ H. P. motor, 33 gallon tank, automatic stop and start, phosphor bronze bearings, automatic moisture release and spring tension take-up on belt.

A type and size adapted to the needs of most stations. Sold for a short time at a special price which makes it the greatest compressor value in the world.

$160

The LUCAS PUMP & TOOL COMPANY DAYTON, OHIO.

DAYTON AIR COMPRESSORS

425 Valley Street — Dayton, Ohio

LUBRICATION

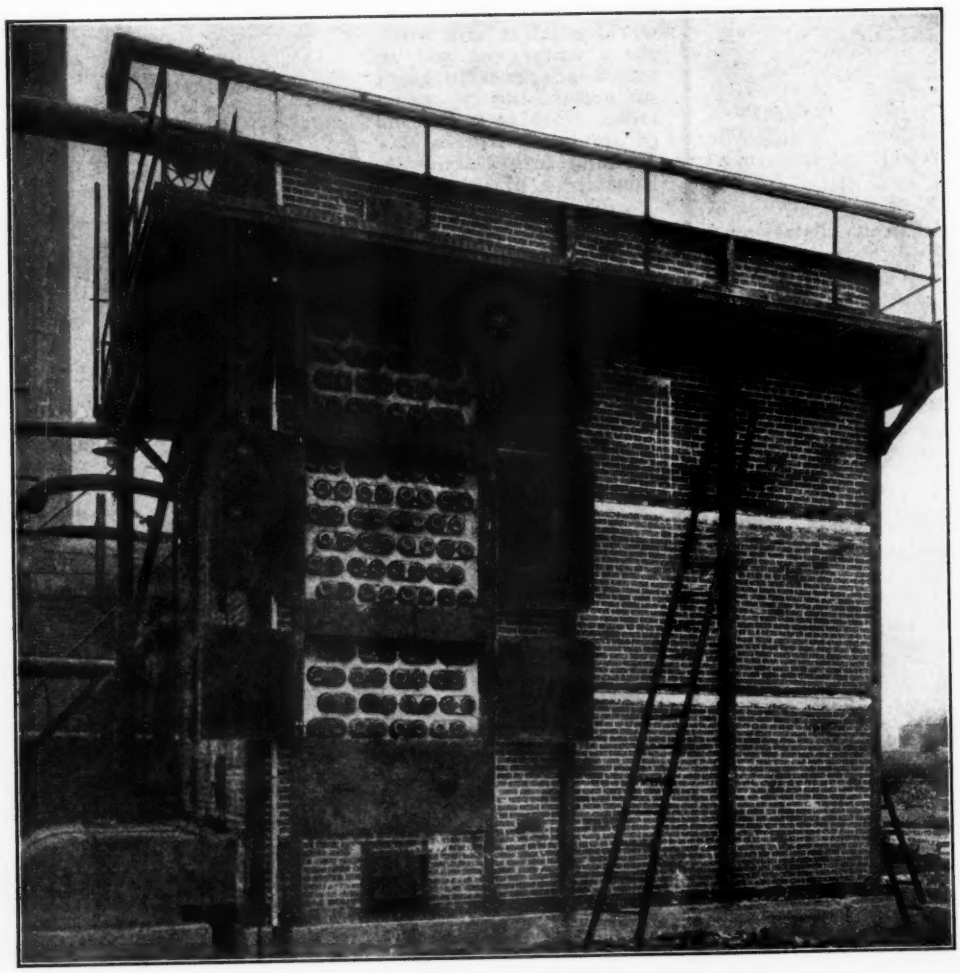
"Friction, Lubrication, Fats and Oils", by Emil P. Dieterichs, is an inexpensive little book that contains valuable information on the manufacture of lubricating oils, solid lubricants and greases, together with numerous formulas; modes of testing oils and the application of lubricants.

Send us your check for $1.50 and we will mail a copy of it to you.

National Petroleum News
802 Caxton Bldg., Cleveland, Ohio

FOSTER

TUBE STILLS



The result of over 20 years of experience in solving problems requiring use of heat.

Foster Tube Still design prevents overheating by rapid and positive circulation, assures uniform heating by arranging all tubes to supply heat with practically equal effectiveness, secures minimum fuel consumption by gradual, continuous, thorough heating effect with complete combustion.

Send for catalog

POWER SPECIALTY COMPANY

111 Broadway, New York

Branch Offices in All Oil Centers

ON THE LAZY BENCH

National Petroleum News

PETE'S MARKETGRAM
Issued Now and Then

IT'S a darn poor state whose body of law makers have not proposed some new law or regulation dealing with oil, during recent months, however at the Cave of The Winds in Washington, where more things have been done about regulating and investigating oil than Ma Ferguson issued pardons, there seems to be a shortage of ideas, for just recently two wise crackers have turned their attention to base ball.

The boss says, its just such capers as those that tend to turn a mere passing desire into a burning passion to attend last rites.

Speaking of law makers in general and Washington in particular, calls to mind about a recent discovery of some skulls with bone a half inch thick dug up down in New Mexico, which was carried as a news item, yet the boss says there are a lot of them still going around under their own power today.

Litup Al, the upstate jobber friend of the boss, who drinks anything that does not remove the nail from a submerged thumb, blew into the office the other day, and threw the business on a dead center.

He and the boss discussed markets, prices, production, gallonage, consumption, yields and such as that. Yet, the only worth while facts brought out, so far as I heard, were about short skirts cutting down the suicide rate, as Litup seemed to have the facts to prove that no man had ever did any trick shooting on himself, swallowed bug poison or in any other manner bumped himself off while looking at any female below the Smith and Wesson line.

Having fixed conditions, also prices (till they could get to a telegraph office) it was concluded to call it a day, so I'm signing off now at just ten minutes past o'clock, S'long.

Pete Roleum,

Office Boy, Refiners Consolidated Sales Co., Wichita, Kans.

◈ ◈ ◈

Different

The minister called at the Jones home one Sunday afternoon and little Willie answered the bell.

"Pa ain't home," he announced. "He went over to the golf club."

The minister's brow darkened, and Willie hastened to explain:

"Oh, he ain't gonna play any golf. Not on Sunday. He just went over for a few highballs and a little stud poker."

—American Refining Co. Eagle

The Optimists' Formula—Ten Barrels Make One Oil Field

Until the first ten barrels of oil is actually flowing from a hole in the ground here in Florida, there will be many of the uninitiated who no doubt will continue to give the possibilities little thought or treat them lightly.

This situation is running true to form. It has always been so everywhere until the persistence of an optimist finally discovered crude oil and made its production the life blood of the community and changed the course of prosperity for that particular section.

Florida, for a considerable portion of its area, lies within a geologic province —the Gulf Coastal Plain—in which oil fields of great productivity have been discovered. It is therefore reasonable to suppose that, as the non-existence of oil is not definitely established, it is a pleasant possibility.

—Southern Oil & Gas News

◈ ◈ ◈

The Oil Reporter Turns in a Real Estate Item

(From the Wichita, Kans. Eagle, Feb. 10, 1927)

Herschel M. Payne, Ed McKenna and Kenneth V. Gregg, known among themselves as the "Payneless Operators," blocked a large floor space on the eleventh floor of the Union National bank building, the legal description being rooms 1114-15-16, are moving in ducoed fixtures and will start operations at the new location this morning. The area is known as the old Payne block, Herschel M. Payne having operated at this location since the Union National opened for lease negotiations several months ago. The dog house and engine room are all fitted out with rotary fixtures and the largest map in Wichita.

◈ ◈ ◈

An Irishman applied for a job at a power plant.

"What can you do?" asked the chief.

"Almost anything, sor," said the Irishman.

"Well," said the chief, a bit of a joker, "you seem to be all right, could you wheel out a barrow of smoke?"

"Shure, fill it up for me."

—Union Oil Bulletin

◈ ◈ ◈

Too Much

Foreman—"Wot's up Bill, 'urt yourself?"

"No; gotta nail in me boot."

"Why don't you take it out, then?"

"Wot! In me dinner hour?"

—American Refining Co. Eagle

Something New in Cases

The bottles are held securely at the bottom by a narrow ledge, and at the top by a spring clip around their neck. There is a partition between each bottle which eliminates any chance of breakage and scratched labels.

The case itself has a stiff box frame, covered with smooth black cowhide, French sewed at edges, and lined with red velvet. Contains fourteen 4 oz. cut-bottom bottles with metal capped corks and ten ½ oz. squat grease jars held by adjustable bar. 209 Complete, with your name embossed in gold, only $15.75

Less 10% for cash.

Other Styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage

614 Delaware KANSAS CITY, MO.

BIGGS TANKS and Heavy Steel Plate Work

FORTY years' successful design of heavy steel plate construction for high-pressure work stands guarantee for the quality of all Biggs Tanks.

Every tank is tested to capacity, plus an additional 10 lbs. hydrostatic pressure. Send for price list covering complete line today.

THE BIGGS BOILER WORKS COMPANY

Buchtel and Bank Streets

AKRON, OHIO

300 Madison Avenue, New York City

Manufacturers of

Pressure Stills for Cracking Process
Fractionating Towers
Dephlegmating Towers
Bubble Towers
Heat Exchangers
Agitators
Steam Stills
Crude Stills
Condenser Boxes
Run Down Tanks
Blending Tanks
Hemispherical Tanks
Blow Cases
Acid Tanks
Compounding Kettles
Storage Tanks to 80,000 Barrels
Smoke Stacks and Breechings, etc.

The Biggs Boiler Works Co. Akron, Ohio

WAR on WASTE!

THE SINCLAIR LAW OF LUBRICATION

for every machine
of every degree of
wear
there is a scientific
Sinclair Oil
to suit its speed
and seal its power

SINCLAIR OILS
REG U.S. PAT. OFF.

A POWERFUL weapon in Sinclair's "War on Waste" is the Sinclair Law of Lubrication. This law tells the motorist that his engine has a "*degree of wear*" which requires just the right grade of oil "to suit its speed and seal its power". And he should change the lubricating oil in his car to fit its changing "degree of wear".

In following this Law of Lubrication, Sinclair dealers are rendering a real service to motorists. There is a science behind it—there's a real service behind it. There is a "War on Waste" behind it—a war on inefficient and destructive operation of machinery. Sinclair Opaline Motor Oil increases the efficiency and prolongs the life of the engine! It helps the motorist maintain economical transportation.

Why not increase your gallonage, by using this common-sense method of motor-oil recommendation?

SINCLAIR REFINING CO.
45 Nassau Street, New York

Atlanta Chicago Detroit Houston Kansas City Omaha

SINCLAIR OPALINE
REG. U.S. PAT. OFF.
MOTOR OIL

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Refinery - Tank Wagon Markets

National Petroleum News

Mid-Continent Gasoline Market Inactive; Prices of all Grades Lose Ground

Staff Special
TULSA, Feb. 19

THE quest of several Mid-Continent refiners this week for shipping instructions for gasolines caused reductions of ¼ to ¾ cent a gallon of prices of almost all grades. Kerosenes and distillates receded somewhat in demand, but gas oil and fuel oils held their strength, the latter products primarily because of several large inquiries and sales for goods to be shipped over the remainder of February and March.

Several factors have contributed to the desire of many refiners to reduce their gasoline stocks and to keep their daily production moving. The most influential factor probably has been the keen competition Mid-Continent refiners have had of late from refiners in other areas who have been quoting prices which, when reduced to a basis of Group 3 prices, were lower than actual Group 3 prices.

Despite this competition Mid-Continent refiners have succeeded in holding gasoline shipments to a good level so far this winter. The shipments have not kept pace, however, with the increase in gasoline production as is usual at this season. Stock increases have been normal or less than normal. The present level is about the same as a year ago in spite of heavier demand.

With the flush production of the Seminole field assuming serious proportions several refiners have decided literally "to let the sun shine each afternoon on the bottoms of their tanks." Inventories of both crude and refined products are being kept low by those refiners who do not have to build a reserve for their own stations.

The only actual effect of Seminole thus far on the Oklahoma market has been psychological. The increasing production in the field is being watched closely by everyone here and it is believed in many quarters that a crude price reduction is not far away unless storage and pipe line facilities are increased more rapidly, or some drastic steps taken to hold down production.

On the other hand there are several refiners who have been keeping their prices somewhat above the going market on gasolines. They have been moving enough gasoline on contracts or need to build up storage to take care of their spring requirements and have not been anxious to move their goods at present low prices. A few have expressed doubt that Seminole will have any effect on the crude market. Nearly everyone thinks, however, that even if a crude price is cut, the reduction will have been discounted as far as refined products are concerned.

Export activity this week has been virtually at a standstill and more refiners are catching up on orders which they accepted some time ago. It is believed in some quarters that the weekly shipments of gasoline from the Mid-Continent have been held to a higher figure than prevailed last year due principally to export movement to the Gulf.

Little ordinary naphtha is being offered on the spot market. Refiners making this product can do their own blending with natural gasolines at their present prices and make a profit. One Oklahoma refiner is piping his naphtha through a welded pipe line from his refinery to a large natural gasoline plant in another field and using all his naphtha and all his natural gasoline at that plant for making 60-62 and 64-66 gravity blends.

The same condition prevails as far as the 450 end point gasolines are concerned. There is little if any demand from jobbers for these grades of motor fuels at present.

Prices of 58-60 U. S. Motor moved down to 8 cents at a few refineries the latter part of this week, although enough Motor was moving at 8¼ cents today for that price to be considered. One sale of 50 cars for over March shipment at 7¾ cents was reported to have been booked by an Oklahoma refiner, while reports from other areas were that refiners were accepting spot business at 7¼ cents Group 3 basis. The latter gasoline was not to come from Group 3 refineries.

Domestic demand for higher gravity gasolines also has been slow this week. One Oklahoma refiner about the middle of the week was reported to have had 25 cars of high gravity goods loaded and was seeking instructions at almost any price. In Texas at least two refiners who have been making high gravity material almost exclusively, have begun cutting considerable U. S. Motor. This step has caused a freer offering of U. S. Motor and has not relieved the higher gravity situation because enough other refiners are making the grades to have a surplus on hand since no export buying has been in progress.

As a result of the lack of demand for 64-66, 375 e. p. gasoline prices of that commodity today were the lowest they have been since Nov. 10, 1924. Prices of 58-60 U. S. Motor incidentally are lower than they have been since the middle of January, 1925.

Natural gasolines also lost ¼ to ½ cent during the week, with demand low. One manufacturer said Friday that for the first time in more than two months he had material loaded and no instructions. Some of the larger manufacturers who are equipped with storage, have stayed out of the market of late or have sold only small quantities to regular customers.

There continued to be scattered buying for movement east but not enough to become a factor in the market. Indications were today that there would be little, if any, change between now and March 1.

The flurry in kerosenes of two or three weeks ago apparently has subsided. The result has been a slight slip in prices. Around Feb. 1 it will be recalled considerable kerosene was bought for both prompt and over the month shipment. At that time it was believed a large part of the purchases were for speculation. The speculative buying over, the jobber demand was not sufficient to carry the price any higher.

Distillates also came down in price with demand off considerably. Refiners reported their contract shipments were holding up well, but that spot buying was not as good as they had hoped. The cold snap the latter part of the week was expected to create a little more demand next week, but no effect had been felt at the close of business today.

One marketer representative in Tulsa yesterday combed the field for some 18-22 gravity fuel oil, and succeeded in placing orders with three refiners out of the large number he called. He said he found the fuel oil situation considerably tighter than it was even around Feb. 1. Several refiners reported they had either quoted on some sizeable orders or had booked a quantity of fuel for deferred shipment. A few predict better prices in March, while others believe prices will remain steady unless cheaper crude is put on the market.

Bright Stocks

and SUPERIOR QUALITY

LUBRICATING OILS

"BE SQUARE" brands are the ***exclusive products*** of the Barnsdall Refineries, Inc., and are produced from our own ***high grade crude,*** transported to one of our three ***modern refineries,*** thru our own system of ***pipe lines*** where it is ***scientifically refined*** into various grades of **Bright Stocks, Red and Pale Oils, Filtered Stocks, Steam Refined Stocks, Motor Oils, Tractor Oils and Paraffine Wax.** It is then shipped to the markets of the world in our own fleet of ***steel tank cars.***

BARNSDALL

—engaged in every branch of the petroleum industry and with our own crude—your source of supply is dependable—from the oil well to the jobber

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New York **Pittsburgh** **St. Louis** **Kansas City** **Omaha** **St. Paul** **Los Angeles**

Refinery Markets on Light Oils and Lubricants

Pennsylvania, Oklahoma, Kansas, North and South Texas, Louisiana, Arkansas, California and New England

GASOLINE AND NAPHTHA

	Prices Feb. 21	Prices Feb. 14	Prices Feb. 7
PENNSYLVANIA			
52-54 Naphtha	11¼-11¾	11½-12	11½-12
54-56 Naphtha	11½-12	11¾-12¼	11¾-12¼
58-60 Gasoline	11½-11¾	11¾-12	11¾-12
60-62 Straight-run gasoline	12¾-12½	12½-13	12½-13
64-66 Straight-run gasoline	13 -13½	13¼-13¾	13¼-13¾
68-70 Straight-run gas. 350-360 E.P.	13¾-14¼	13¾-14½	13¾-14½
68-70 Straight-run gas. 305-320 E.P.	18 -20	18 -20	18 -20
OKLAHOMA			
48-50 450 E. P. naphtha	- 8¼	- 8¾	- 8¾
50-52 450 E. P. naphtha	8¼- 8½	- 8¾	- 8¾
56-58 450 E. P. gasoline	-†8	8¾- 8½	- 8½
56-58 U. S. Motor gasoline	-†8	- 8½	8½- 8¾
58-60 450 E. P. gasoline	-†8	- 8½	8½- 8¾
58-60 U. S. Motor 437 E. P.	8 - 8¼	8½- 8¾	8¾- 9
60-62 437 E. P. gasoline	- 8½	8¾- 9	- 9
60-62 400 E. P. gasoline	- 9	- 9¼	9¼- 9½
64-66 390 E. P. gasoline	- 9½	9¾-10	-10
64-66 375 E. P. gasoline	- 9¾	10 -10¼	10¼-10½
68-70 350-360 E. P. gasoline	10½-10¾	-11	-11

†Prices Nominal.

KANSAS*			
58-60 U. S. Motor gasoline	8½- 8¾	- 9	9 - 9¼
60-62, 400 E. P. gasoline	- 9¼	9½- 9¾	-10
64-66 375 E. P. gasoline	-10	10½-10¾	-10¾

*F. O. B. refinery Kansas destination.

NORTH TEXAS			
48-50 450 E. P. naphtha	- 8	8 - 8¼	- 8½
56-58 450 E. P. gasoline	- 8	8¼- 8½	8¾- 8½
58-60 450 E. P. gasoline	- 8½	- 8½	- 8¾
56-58 U. S. Motor gasoline	- 8¼	- 8¾	- 8¾
58-60 U. S. Motor gasoline	8¼- 8½	8¾- 9	- 9
64-66 390 E. P. gasoline	9¼- 9½	9¾-10	-10
64-66 375 E. P. gasoline	- 9¾	10 -10½	-10¼
68-70 350-360 E. P. gasoline	-10½	-10¾	-10¾
NORTH LOUISIANA			
58-60 U. S. Motor 437 E. P.	8½- 8¾	8¾- 9	- 9
ARKANSAS			
56-58 450 E. P. gasoline	- 8¼	8½- 8¾	8½- 8¾
58-60 450 E. P. gasoline	- 8¾	- 8¾	- 8¾
58-60 U. S. Motor gasoline	8½- 8¾	- 9	- 9
CALIFORNIA			
*54-58 U. S. Motor 437 E. P.	9½-10	9½-10	9½-10
*58-61 U. S. Motor, 437 E. P.	10½-11	10½-11	10½-11
*42-45 Engine distillate 445-480 E. P.	7 - 7½	7 - 7½	7 - 7½

*2c tax to be added if used in state.

NEW ENGLAND (F. O. B. Boston and Fall River)			
58-60 U. S. Motor gasoline	-13	13 -13½	-13

NATURAL GASOLINE

(Note: End point of all grades, not over 375° F.)

OKLAHOMA			
Grade AA, 80-87.9 375 E. P.	- 6¾	- 7	7¼- 7½
Grade A, 72-79.9 375 E. P.	7 - 7¼	- 7½	7¾- 8
Grade BB, 84-92, 375 E. P.	- 5¾	6 - 6¼	6¾- 6½
Grade B, 76-83.9, 375 E. P.	6 - 6¼	6½- 6¾	- 6¾
Grade C, 80-90, 375 E. P.	5¼- 5½	5¾- 6	†6¾
NORTH LOUISIANA			
*Grade Double A	- 7¼	7½- 7¾	7¾- 8
*Grade Double B	- 6¼	6½- 6¾	6¾- 7
*Grade C	- 6	6¾- 6½	6½- 6¾

*F. O. B. Monroe District.

NORTH TEXAS			
*Grade Double A	- 6¾	- 7	7¼- 7½
*Grade A	7 - 7¼	- 7½	- 7¾
*Grade Double B	- 5¾	6 - 6¼	- 6½
*Grade B	6 - 6¼	- 6½	- 6½
*Grade C	- 5½	6 - 6⅜	- 6¾

*F. O. B. Breckenridge.

†Prices nominal, no sales being recorded on this date.

CALIFORNIA			
75-85, 375-390 E. P. blend	11½-13	11½-13	11½-13

MOTOR FUEL BLENDS

PENNSYLVANIA			
68-70 Grav. 437 E. P. blend	12¼-12½	12¼-12½	12¼-12½
64-66 Grav. 437 E. P. blend	12¾-12½	12¼-12½	12¾-12½
60-62 Grav. 437 E. P. blend	-12	-12	-12
68-70 Grav. 420 E. P. blend	12¼-12½	12¼-12½	12¼-12½
OKLAHOMA			
64-66 437 E. P. blend	- 8	- 8½	8½- 8¾

BURNING OILS

PENNSYLVANIA			
45 Water White Kerosene	7¾- 8	7¾- 8	8 - 8¼
46 Water White Kerosene	8¼- 8¼	8¼- 8¼	8¼- 8¾
47 Water White Kerosene	8¾- 9	8¾- 9	9 - 9¼
OKLAHOMA			
41-43 Water White Kerosene	6 - 6¼	- 6¼	6 - 6¼
42-44 Water White Kerosene	- 6¾	- 6¾	- 6¾
KANSAS			
41-43 w. w. kerosene	6½- 6¾	6½- 6¾	- 6½
42-44 w. w. kerosene	7 - 7¼	7 - 7¼	7 - 7¼
NORTH TEXAS			
40-42 Water White Kerosene	- 5¾	- 5¾	- 5¾
41-43 Water White Kerosene	6 - 6¼	6 - 6¼	- 6
NORTH LOUISIANA			
41-43 Water White Kerosene	6½- 6¾	6½- 6¾	- 6½
ARKANSAS			
41-43 Kerosene	- 6¾	- 6¾	- 6¾
CALIFORNIA			
38-40 Water White Kerosene	6 - 6½	6 - 6½	6 - 6½
NEW ENGLAND			
**40-43 Water White Kerosene	- 9	- 9	- 9¼

NEUTRAL OIL

PENNSYLVANIA (Viscosity at 70° F.)			
200 Vis. No. 3 Assoc. Filt.	32 -32½	-32	-32
180 Vis. No. 3 Assoc. Filt.	-30	29½-30	29½-30
150 Vis. No. 3 Assoc. Filt.	27 -28	27 -28	26½-27
(Non-Viscous)			
34 Grav. 330-340 Flash	8 - 8½	8 - 8½	8¼- 8¾
36 Miners Neutrals 300-305 Flash	7¼- 7¾	7¼- 7¾	7½- 7¾
OKLAHOMA (Viscosity at 100° F.)			
100 Vis. No. 2 color	7 - 7½	7 - 7½	7 - 7½
150 Vis. No. 3 color	9 -10	9 -10	9 -10
150 Vis. No. 4 color	- 9¾	- 9¾	- 9¾
180 Vis. No. 3 color	10 -11	10 -11	10 -11
180 Vis. No. 4 color	10 -10½	10 -10½	10 -10½
180 Vis. No. 5 color	10 -10¼	10 -10¼	10 -10¼
200 Vis. No. 3 color	10¾-11¾	10¾-11¾	10¾-11¾
200 Vis. No. 4 color	-11½	-11½	-11½
200 Vis. No. 5 color	9¼-11¼	9¼-11¼	9¼-11¼
220 Vis. No. 3 color	12 -13½	12 -13½	12 -13½
220 Vis. No. 4 color	-13	-13	-13
220 Vis. No. 5 color	12 -12¾	12 -12¾	12 -12¾
240 Vis. No. 3 color	14 -15	14 -15	14 -15
240 Vis. No. 4 color	-14½	-14½	-14½
240 Vis. No. 5 color	13 -14	13 -14	13 -14
280 Vis. No. 3 color	16 -17	16 -17	16 -17
280 Vis. No. 4 color	-16½	-16½	-16½
280 Vis. No. 5 color	15 -16	15 -16	15 -16
300 Vis. No. 5-6 color	-17	-17	-17
GULF COASTAL (Viscosity at 100° F; pour test 0)			
100 Vis. No. 2 Color Unfilt. Pale	8 - 9	8 - 9	8 - 9
200 Vis. No. 3 Color Unfilt. Pale	11 -12	11 -12	11 -12
300 Vis. No. 3 Color Unfilt. Pale	12 -13	12 -13	12 -13
500 Vis. No. 3½ Color Unfilt. Pale	14 -15	14 -15	14 -15
750 Vis. No. 4 Color Unfilt. Pale	16 -17	16 -17	16 -17
200 Vis. No. 5½ Color Red Oil	9 -10	9 -10	9 -10
300 Vis. No. 5½ Color Red Oil	10 -11	10 -11	10 -11
500 Vis. No. 6 Color Red Oil	12 -13	12 -13	12 -13
750 Vis. No. 6 Color Red Oil	15 -16	15 -16	15 -16
CALIFORNIA (Viscosity at 100° F.)			
100 Vis. No. 2 color	9 - 9½	9 - 9½	9 - 9½
100 Vis. No. 3 color	7½- 8	7½- 8	7½- 8
200 Vis. No. 3 color	9½-10	9½-10	9½-10
300 Vis. No. 3 color	10½-11	10½-11	10½-11
450 Vis. No. 3-3½ color	13 -13½	13 -13½	13 -13½
550 Vis. No. 3-3½ color	14½-15	14½-15	14½-15
600 Vis. No. 3 3½ color	15 -15½	15 -15½	15 -15½
100 Vis. No. 5 color	6½- 7	6½- 7	6½- 7
200 Vis. No. 5 color	8½- 9	8½- 9	8½- 9
300 Vis. No. 5 color	9 - 9½	9 - 9½	9 - 9½
400 Vis. No. 6 color	11 -11½	11 -11½	11 -11½
500 Vis. No. 6 color	11½-12	11½-12	11½-12
600 Vis. No. 6 color	12 -12½	12 -12½	12 -12½
700 Vis. No. 7 color	14½-15	14½-15	14½-15

CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Bright Stock	31 -35	31 -35	31 -35
150-160 Vis. at 210° Bright Stock	27 -31	27 -31	27 -31
600 E Stock 140-150 Vis. —210°	18 -20	18 -20	18 -20
600 Steam Refined Olive Green	8 -11	8 -11	8 -11
600 Steam Refined Dark Green	5½- 7½	5½- 7½	5½- 7½
Black Oil	5 - 6	5 - 6	5 - 6
PENNSYLVANIA (1-inch Immersion Test)			
600 Steam Refined	12 -12½	12 -12½	12 -12½
650 Steam Refined	16 -16½	15½-16½	16 -16½
600 Flash	20 -21	20 -20½	20 -20½
625 Flash	-30	-30	-30
600 Warren E	20 -20½	20 -20½	20 -20½
600 Oil City E	18 -19	18 -19	18½-19
600 D Filtered	25½-26	25½-26	25½-26
Cold Test Stocks (bright filtered)	36½-38	37 -38	-37
Cold Test Stock (dark filtered)	35 -36	35 -36	-35

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher.)

LONG RESIDUUM STOCKS

PENNSYLVANIA			
60-65 vis. @ 210, 440-450 flash No. 5½ color	-34	-34	-34
70-75 vis. @ 210, 450-455 flash No. 6 color	34 -35	34 -35	34 -35
80-85 vis. @ 210, 440-450 flash No. 7 color	-36	-36	-36
80-85 vis. @ 210, 450-460 flash No. 7-8 color	36 -37	36 -37	36 -37
80-85 vis. @ 210, 460-465 flash No. 7 color	37 -38	37 -38	37 -38
95-100 vis. @ 210, 490-495 flash No. 8 color	-39	-39	-39

**Only one refiner quoting.

The bugbear of Sludge Acid Concentration
may *now* be avoided by employing

THE GEYSER-ACTION PROCESS

(*using Skoglund's Acid Concentrator*)

which requires only *One Stage* to bring the Acid up to *Strength* giving a *High Yield* at a *Low Cost.*

Simple in Operation, necessitating but few shutdowns to clean or repair the Apparatus.

No Fume Nuisance or Filthy Product

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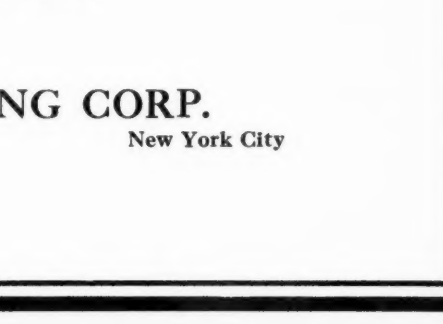
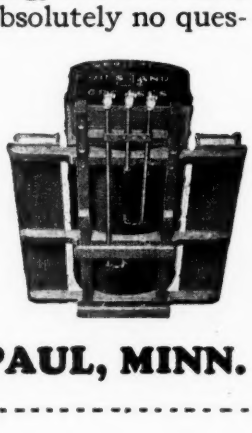


Right now and every day this year you will need a Brown CERTIFIED truck tank. In these days of close competition, when every ounce of energy must be used and every possible short cut made that will lead to a saving, there is absolutely no question about the efficiency of a Brown CERTIFIED tank. It will stand up and deliver the oil day in and day out, and you can forget repair bills because there will be no repairs necessary.

You will be surprised to learn how reasonably these "no-repair" tanks can be bought.



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We are interested in your tanks. Send your catalog and prices.

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Name..... Address.....

Refinery Markets on Wax and Heavy Oil Products

Pennsylvania, Oklahoma, Kansas, North and South Texas, Louisiana, Arkansas, California, and New England

WAX

*PENNSYLVANIA	Prices Feb. 21	Prices Feb. 14	Prices Feb. 7
122-124 White Crude Scale.	– 4½	4⅜– 4½	4⅜– 4⅝
124-126 White Crude Scale.	4½– 4⅝	4½– 4⅝	– 4⅝
OKLAHOMA			
124-126 White Crude Scale.	– 4¼	4⅛– 4¼	– 4¼
CALIFORNIA			
White Crude Scale	6 – 7	6 – 7	6 – 7

*Per Pound, New York

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil	6¾– 6⅞	6¾– 6⅞	6¾– 6⅞
30-34 Fuel Oil	6 – 6¼	6 – 6¼	6 – 6¼
28-30 Fuel Oil	6 – 6⅛	6 – 6⅛	6 – 6¼
OKLAHOMA			
38-40 Straw distillate	4⅜– 4½	4¾– 5	4⅞– 5
36-38 Straw distillate	– 4½	4⅝– 4¾	4¾– 4¾
**32-36 Gas oil straw (Gal.)	†4¼– 4½	4¼– 4½	4⅜– 4⅜
**32-36 dark Gas oil, (Gal.)	4⅛– 4½	– 4¼	4¼– 4½
*28-30 Fuel oil (Bbl.)	1.50 –1.60	1.50 –1.60	1.50 –1.60
*26-28 Fuel oil (Bbl.)	1.30 –1.40	1.30 –1.40	1.30 –1.40
24-26 Fuel oil (Bbl.)	1.25 –1.30	1.25 –1.30	1.25 –1.30
22-26 Fuel oil (Bbl.)	1.20 –1.25	1.20 –1.25	1.20 –1.25
18-22 Fuel oil (Bbl.)	1.17½–1.20	1.17½–1.20	1.17½–1.20
16-18 Fuel oil (Bbl.)	1.17½–1.20	1.17½–1.20	1.17½–1.20
14-16 Fuel oil (Bbl.)	1.15 –1 17½	1.15 –1.17½	1.15 –1.17½

*Zero cold test material bringing from 5 to 15 cents more per barrel.
†Prices nominal.
**Zero cold test gas oil sells at ¼ to ⅜ of a cent higher than higher cold test material.

KANSAS*			
38-40 straw distillate	– 5½	– 5½	– 5½
36-38 straw distillate	– 5¼	– 5¼	– 5¼
32-36 Gas Oil	4⅜– 4½	4⅜– 4½	4⅜– 4½
18-22 Fuel Oil	1.25 –1.35	1.25 –1.35	1.25 –1.35
24-26 Fuel Oil	1.45 –1 55	1.45 –1.55	1.45 –1.55

*F. O. B. refinery, Kansas destination.

NORTH TEXAS			
38-40 Straw distillate	– 4¾	– 4¾	4¾– 5
32-36 Gas Oil (Gal.)cracked	– 4¼	– 4¼	– 4¼
32-36 uncracked gas oil	4⅛– 4¼	4⅛– 4¼	4⅛– 4¼
24-26 Fuel per (Bbl.)	1.55 –1.60	1.55 –1.60	1.55 –1.60
GULF COASTAL			
Fuel	1.60 –1.65	1.60 –1.65	1.60 –1.65
Gas Oil	5¼– 5⅜	5¼– 5⅜	5¼– 5⅜

NORTH LOUISIANA	Prices Feb. 21	Prices Feb. 14	Prices Feb. 7
32-36 Gas oil,cracked (Gal.)	4⅜– 4½	4⅜– 4½	– 4½
32-36 Gas oil,uncracked (Gal.)	4½– 4¾	4½– 4¾	4½– 4¾
16-20 Fuel Oil (Bbl.)	1.30–1.35	1.30 –1.35	–1.30
ARKANSAS			
30-34 Gas oil	4½– 4⅝	4½– 4⅝	4½– 4⅝
32-36 Gas oil	– 4¾	– 4¾	– 4¾
*Smackover Crude Fuel	1.25 –1.27½	1.25 –1.27½	1.25 –1.30

*For unrestricted shipment.

CALIFORNIA*			
14-18 Fuel Oil (Bbl.)	.80 –1.00	.80 –1.00	.80 –1.00
14-18 Bunker Oil (Bbl.)	.80 –1.00	.80 –1.00	.80 –1.00
30-34 Gas Oil (Bbl.)	1.30 –1.35	1.30 –1.35	1.30 –1.35
27 + Diesel Oil (Bbl.)	–1.15	–1.15	–1.15

*(San Joaquin Valley, San Francisco 4c per bbl. more.)

NEW ENGLAND (F. O. B. Boston and Fall River)			
30-32 Gas Oil (Gal.)	– 6¼	– 6¼	– 6¼
Fuel Oil (Bunker C) Bbl.	–2.05	–2.00	–1.98

PETROLATUMS

PENNSYLVANIA (Cents Per Pound in Tank Cars)*

Snow White	7¼– 7½	7¼– 7½	7¼– 7½
Lily White	– 6¼	– 6¼	– 6¼
Cream White	– 5¼	– 5¼	– 5¼
Light Amber	2¾– 2¾	2¾– 2¾	2¾– 2¾
Amber	2¾– 2½	2¾– 2½	2¾– 2½
Red	– 2¼	– 2¼	– 2¼
Green No. 5 Color	– 1½	– 1¾	– 1¾

*In barrels ¾c a pound more, carlots.

PETROLEUM COKE

OKLAHOMA (Per ton in car lots)

Lump	$5–$6	$5–$6	$5–$6
Breeze	2–2.25	2–2.25	2–2.25
Still Run	3.25–3.50	3.25–3.50	3.25–3.50

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing. will favor us with this information.

Crude and Gasoline Stocks Gain in January

NEW YORK, Feb. 21.—The increase in January pipe line and tank farm stocks of crude oil east of the Rockies was eight times the increase of December stocks over November. Gasoline stocks increased twice the amount of increase in December, according to a preliminary report of the American Petroleum Institute.

Pipe line and tank farm gross domestic crude stocks east of the Rockies gained 1,373,000 barrels in January, as compared with an increase of 172,000 barrels in December, and stood at over 260,000,000 barrels on Jan. 31.

Stocks of refined products at refineries east of California showed a net increase of 2,288,000 barrels in January as compared with an increase of 1,274,000 barrels in December, covering approximately 82 per cent of the operating capacity of the country east of California in January.

Gasoline stocks at refineries increased 4,175,000 barrels, standing at 32,257,000 barrels on Jan. 31 east of California, as compared with an increase of 2,249,000 barrels in December.

Refinery stocks of domestic crude decreased 591,000 barrels, as compared with a gain of 80,000 barrels in December. Kerosene stocks decreased 96,000 barrels, gas and fuel oil stocks 1,616,000 barrels, while lube oil stocks increased 281,000 barrels in January.

General Petroleum Will Start Up New Plant

Staff Special

LOS ANGELES, Feb. 19.—The new General Petroleum Corp. natural gasoline plant in the Ventura Avenue field, erected by J. A. Campbell, using Campbell equipment, will be operating next week, running about 20,000,000 cubic feet of gas, with a natural gasoline output of about 25,000 gallons. The General Petroleum has been operating a smaller plant which has a daily capacity of about 14,000,000 cubic feet.

The Standard Gasoline Co. has three plants operating in the Ventura Avenue field with a daily average capacity of about 70,000 cubic feet of gas, and nine Campbell absorbers have been ordered for installation in bringing up to date the old plants.

The Shell Co.'s new plant at Ventura is also operating full time, running close to 100,000,000 cubic feet of gas daily.

The natural gasoline plants in the Ventura Avenue field now have a combined daily capacity of better than 175,000,000 cubic feet of gas.

Cylinder Stocks Demand Shows Improvement

CLEVELAND, Feb. 21.—More active inquiry and demand for steam refined stocks was reported today by western Pennsylvania refiners. Prices were reported to be firm. Filtered stocks were active and demand for bright stocks was fairly good although shading was reported. Larger refiners were holding light filtered bright stocks with the usual pour test of around 40° F. at 37 cents but stocks with lower pour points commanded higher prices.

The quantity of spot market neutrals continues small but some, are said to be available every day. The 200 viscosity at 70° F. grade is fractionally higher. One sale was made today at 32½ cents.

Gasoline movement is considered normal for the season but refiners are becoming anxious about the western markets. Oklahoma U. S. Motor may now be laid down in territory normally served by Pennsylvania refiners at 12 cents. Mid-Continent gasoline is now more of a competing factor in western New York state and Pennsylvania than California gasoline.

Kerosene and fuel oils are steady.

Fuel Oils and Kerosene are Firm In Chicago Resale Market

Staff Special

CHICAGO, Feb. 19

FUEL oils and kerosene prices were firm this week in the Chicago resale market, and gasolines continued to ease off with 58-60 U. S. Motor losing a full ½ cent. Spot movement of all commodities was quiet and unchanged from the previous week.

Inquiries are beginning to come into the market from industrials for fuel requirements over 30 days or over March, it was reported from some quarters. Among these inquiries was one for 75 cars of 32-36 gas oil for over March from a Chicago industrial. While the Chicago trade continues to discuss the coal strike possibility and its probable bearing on the fuel market this topic has given way to watching the present crude situation.

Gasoline spot movement this week continued to be slow. One carload marketer today reported his jobbers were more inclined to buy late this week than in the fore part. Majority of trade reported buyers were not interested, with markets declining and with weather still adverse to great gallonage.

The kerosene market remained firm while demand showed no change over the previous week. Price on 41-43 w.w. was 6⅛ to 6¼ cents to the trade all week.

Furnace oils were in little demand; spotty sales of gas oils were reported while distillate was sluggish. The 38-40 straw distillate price was 5 cents Monday, and fell to 4¾ cents at the end of the week. Straw zero gas oil, 32-36 gravity, was sold at 4¾ cents Monday. It developed a range of 4⅝ to 4¾ cents. Dark zero gas oil opened the week at 4⅜ to 4½ cents, went to 4⅜ cents flat Wednesday, and to 4¼ to 4⅜ cents today. Dark gas oil with high cold test remained pegged at 4¼ to 4⅜ cents.

Prices of fuel oils also were pegged with 18-22 fuel being $1.17½ to $1.20; 22-26, $1.22½ to $1.25; 24-26, $1.25 to $1.30; 28-30 low cold test, $1.60 to $1.65; and Smackover firmer at $1.25 to $1.27½.

High test and U. S. Motor gasoline experienced a week of gradual price lowering. The 58-60 Motor opened the week with sales at 8½ to 8¾ cents, the market going to 8¼ to 8½ cents Tuesday when 30 cars were sold for prompt shipment at the lower figure, and continued to narrow to a flat 8¼ cents today. Several refiners were quoting above the market, two reported sales through the week at 8¾ cents and a third was quoting 9 cents. Sales were reported at 8⅛ cents by a marketer late Friday in meeting competition. Reports were current here that a Michigan jobber this week bought 75 cars of Motor at 8⅛ cents, Group 3 freight basis, to be shipped from differential territory at rate of 10 cars weekly.

The 60-62, 437 e.p. grade of gasoline opened at 8¾ to 9 cents, centered at 8¾ cents Tuesday, and today ranged from 8½ to 8¾ cents; 60-62, 400 e.p. gasoline eased off from 9⅜ to 9½ cent market Monday to 9⅜ cents Wednesday, 9 cents flat Thursday through the remainder of the week. The 64-66, 375 e.p. grade was 10⅛ to 10¼ cents Monday and receded to 9¾ to 10 cents today. The 68-70, 350-360 e.p. gasoline sold at 11 cents Monday and closed with a range of 10¾ to 11 cents.

Seasonable temperatures have been predicted for next week in the Chicago forecast district, with occasional periods of precipitation.

Gulf Lubes Unchanged

HOUSTON, Feb. 19.—Gulf Coastal lubricant markets are unchanged. Demand is described as satisfactory, the season considered. Prices are firm and stocks of principal grades are about as expected. Stocks of grades that accumulate at this season of the year are described as smaller than manufacturers had considered probable. Other grades are reported to be moving satisfactorily. Firmer markets reflect lessened disposition of manufacturers to shade prices.

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Week's Price Changes Tank Wagon Markets

Gasoline Changes

Standard of New Jersey—S.s. price gasoline was reduced 3 cents at Columbia, S. C. to 24 cents, Oct. 20, 1926, making t.w. and s.s. prices same. Columbia s.s. prices in the tank wagon table since Oct. 20 have been erroneously published 3 cents above the tank wagon price.

Standard of Kentucky—T.w. and s.s. prices gasoline reduced 2 cents, Covington, Ky. to 21 cents and 24 cents respectively, **Feb. 15.**

T.w. and s.s. prices gasoline reduced 2 cents, Georgia and Florida, **Feb. 15.**

Standard of Indiana—T.w. and s.s. prices gasoline advanced 4.2 cents, Sioux City, Ia., to 19.1 and 21.1 cents respectively, **Feb. 18.** This advance establishes normal schedule at that point.

* * *

Kerosene Changes

Standard of New Jersey—Kerosene cut 1 cent, Washington, to 12 cents, **Feb. 17.** Kerosene price at Cumberland, Md. was reduced ¾ cent, to 14.25 cents, **Jan. 28.**

Magnolia Petroleum—The normal 3 cent discount to dealers at El Paso was put into effect **Feb. 18.** A 2 cent discount to the dealer had been in effect at El Paso since Nov. 9, 1926.

Los Angeles Shipments

Staff Special

LOS ANGELES, Feb. 18.—During the two weeks ended Feb. 12, 2,737,428 barrels of petroleum products moved out of Los Angeles harbor in bulk to Atlantic domestic, Atlantic foreign and Pacific foreign trade points. This included 611,976 barrels of crude, 1,574,783 barrels of fuel oil, 469,049 barrels of gasoline, and miscellaneous products.

During the week ending Feb. 12, the bulk movement to points mentioned included 399,732 barrels of crude, 846,580 barrels of fuel oil, 371,870 barrels of gasoline, in addition to miscellaneous stuff. Last week Atlantic domestic drew 263,385 barrels of fuel, 79,000 barrels of crude and 223,407 barrels of gasoline. Atlantic foreign drew 110,958 barrels of crude, 232,507 barrels of fuel and 143,627 barrels of gasoline. The balance went to Pacific foreign.

Ohio Tank Car Prices

CLEVELAND, Feb. 19.—Jobbers that attended the convention of the Ohio Petroleum Marketers' Association at Columbus Feb. 17 and 18, reported buying U. S. Motor gasoline Feb. 18 at 7¾ and 8 cents, Group 3 basis. This gasoline, however, did not come from Group 3. One large Ohio refiner was reported selling at 11.45 cents delivered in Ohio. For Cleveland this price was equivalent to 7¾ cents in Group 3 but the gasoline came from an Ohio plant. Another Ohio refiner was holding to 8 cents, Group 3 basis. State tax of 2 cents a gallon was added by the refiners.

Tank Wagon, Service Station Markets for Gasoline and Kerosene In United States Territories and Canada

These Prices in Effect Feb. 21, 1927

S. O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Atlantic City, N. J.	19	0	19	*	15
Newark, N. J.	19	0	19	21	15
Annapolis, Md.	19	2	21	*	15
Baltimore, Md.	19	2	21	24	10
Cumberland, Md.	19	2	21	24	14.25
Washington, D. C.	19	2	21	24	12
Danville, Va.	18	4½	22.5	*	15
Norfolk, Va.	18	4½	22.5	25.5	15
Richmond, Va.	18	4½	22.5	25.5	15
Roanoke, Va.	18	4½	22.5	25.5	15
Petersburg, Va.	18	4½	22.5	25.5	15
Williamsburg, Va.	18	4½	22.5	*	15
Charleston, W. Va.	18	3½	21.5	24.5	15
Clarksburg, W. Va.	18	3½	21.5	24.5	15
Keyser, W. Va.	18	3½	21.5	*	15
Parkersburg, W. Va.	18	3½	21.5	24.5	15
Wheeling, W. Va.	18	3½	21.5	24.5	15
Charlotte, N. C.	19	4	23	26	15
Hickory, N. C.	19	4	23	*	15
High Point, N. C.	19	4	23	*	15
Mt. Airy, N. C.	19	4	23	26	15
Salisbury, N. C.	19	4	23	26	15
Charleston, S. C.	19	5	24	27	15
Columbia, S. C.	19	5	24	24	15

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

*New York City	22	0	22	26	17
Albany, N. Y.	22	0	22	24	17
Buffalo, N. Y.	20	0	20	23	14
†Rochester, N. Y.	20	0	20	24	14
Syracuse, N. Y.	22	0	22	24	17
Boston, Mass.	22	0	22	24	15
Augusta, Me.	22	3	25	28	17
Manchester, N. H.	22	2	24	26	17
Burlington, Vt.	22	2	24	26	17

*In steel barrels.

†It is reported that S. O. New York is selling a second grade of gasoline at Rochester, from 2 to 3c below the above posted prices which apply on its Socony grade.

ATLANTIC REFINING

Pittsburgh, Pa.	19	*	19	*24	16
Philadelphia, Pa.	19	*	19	*24	16
Allentown, Pa.	19	*	19	*24	16
Erie, Pa.	19	*	19	*24	16
Scranton, Pa.	19	*	19	*24	16
Altoona, Pa.	19	*	19	*24	16
Dover, Del.	19	2	21	24	16
Wilmington, Del.	19	2	21	24	16
Providence, R. I.	22	1	23	25	17
Boston, Mass.	22	0	22	24	15
Springfield, Mass.	22	0	22	24	17
Worcester, Mass.	22	0	22	24	17
Hartford, Conn.	22	2	24	26	17
New Haven, Conn.	22	2	24	26	17

*2-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Lexington, Ky.	17	5	22	25	17
Louisville, Ky.	17	5	22	25	17
Covington, Ky.	16	5	21	24	17
Clarksdale, Miss.	16	4	20	23	14.5
Gulfport, Miss.	††17.5	4	††21.5	24.5	15
Jackson, Miss.	16	4	20	23	15.5
Natchez, Miss.	15.5	4	19.5	22.5	15
Vicksburg, Miss.	15.5	4	19.5	22.5	15
Birmingham, Ala.	18	4	22	25	17.5
Mobile, Ala.	17	4	21	24	16
Montgomery, Ala.	*19	4	23	26	*18.5
Atlanta, Ga.	†16	3½	20	23	18
Augusta, Ga.	†16	3½	20	23	17
Macon, Ga.	†16	3½	20	23	18
Savannah, Ga.	†16	3½	20	22	16
Jacksonville, Fla.	14	4	18	21	16
Miami, Fla.	16	4	20	23	17.5
Tampa, Fla.	14	4	18	21	16
Pensacola	**15	4	**19	22	16.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

†Georgia has ½ cent per gal. inspection fee on gasoline which is deducted as well as the state gasoline road tax of 3½ cents, to get the actual net tank wagon market to dealer.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline T.W.	Tax	**Total T.W.	S.S.	Oil T.W.
Chicago, Ill.	17	0	17	19	13
Decatur, Ill.	17.2	0	17.2	19.2	13.6
E. St. Louis, Ill.	16.1	0	16.1	18.35	12.7
Joliet, Ill.	17.4	0	17.4	19.4	13.8
Peoria, Ill.	17.2	0	17.2	19.2	13.6
Quincy, Ill.	17.2	0	17.2	19.2	13.4
Indianapolis, Ind.	17.2	3	20.2	22.2	14.2
Evansville, Ind.	17	3	20	22	14
South Bend, Ind.	17.4	3	20.4	22.4	14.4
Detroit, Mich.	17.8	2	19.8	21.8	14.7
Grand Rapids, Mich.	17.7	2	19.7	21.7	14.6
Saginaw, Mich.	17.9	2	19.9	21.9	14.8
Green Bay, Wis.	17.6	2	19.6	21.6	13.4
Madison, Wis.	17.3	2	19.3	21.3	13.1
Milwaukee, Wis.	17.1	2	19.1	21.1	12.9
La Crosse, Wis.	18.2	2	20.2	22.2	14
Minneapolis, Minn.	15.2	2	17.2	19.2	13.9
Duluth, Minn.	18.5	2	20.5	22.5	13.9
Mankato, Minn.	18.1	2	20.1	22.1	13.7
Des Moines, Iowa	14	2	16	18	13.5
Davenport, Iowa	17.5	2	19.5	21.5	13.5
Sioux City, Iowa	17.1	2	19.1	21.1	13.1
Mason City, Ia.	17.5	2	19.5	21.5	13.5
St. Louis, Mo.	*16.6	2	18.6	20.9	12.6
Kansas City, Mo.	†16	2	18	20	11.9
St. Joseph, Mo.	†17.5	2	19.5	21.5	12.5
Fargo, N. D.	19.9	2	21.9	23.9	15.9
Grand Forks, N. D.	20	2	22	24	16.2
Minot, N. D.	19.9	2	21.9	23.9	15.9
Pierre, S. D.	18.5	3	21.5	23.5	14.9
Huron, S. D.	18.5	3	21.5	23.5	14.9
Wichita, Kans.	15.8	2	17.8	19.8	11.8
Bartlesville, Okla.	15.8	3	18.8	20.8	11.8

**Dumps of 50 gallons or more, 1c discount through territory, except in Chicago where 1c discount applies on dumps of 100 gallons or more.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. NEBRASKA

Omaha, Neb.	14.25	2	16.25	20.25	13.25
McCook	18.75	2	20.75	22.75	14.75
Norfolk	16	2	18	20	13.75
North Platte	18.75	2	20.75	22.75	14.5
Scottsbluff	18.25	2	20.25	22.25	14

CONTINENTAL OIL

Denver, Colo.	18	2	20	21	15.5
Pueblo, Colo.	15	2	17	19	15.5
Grand Junction, Colo.	21.5	2	23.5	25.5	19
Casper, Wyo.	18	2½	20.5	22.5	14
Cheyenne, Wyo.	19	2½	21.5	23.5	15.5
Butte, Mont.	19	3	22	22	19
Helena, Mont.	22	3	25	27	19
Salt Lake City, Utah.	20.5	3½	24	26	17
Boise, Ida.	22.5	3	25.5	27.5	19
Twin Falls, Ida.	22.5	3	25.5	27.5	19
Albuquerque, N. M.	19	3	22	25	18

S. O. CALIFORNIA

Phoenix, Ariz.	19	3	22	25	21.5
Los Angeles, Cal.	13.5	2	15.5	18.5	15.5
Fresno, Cal.	14	2	16	19	16.5
San Francisco, Cal.	14	2	16	19	15.5
Reno, Nev.	18	4	22	25	19
Portland, Ore.	14	3	17	20	16.5
Seattle, Wash.	14	2	16	19	16.5
Spokane, Wash.	18	2	20	23	20.5
Tacoma, Wash.	14	2	16	19	16.5

S. O. LOUISIANA

Little Rock, Ark.	15	4	19	22	13
Alexandria, La.	15	2	17	20	†15
Baton Rouge, La.	14	2	16	19	†13.5
Lake Charles, La.	15.5	2	17.5	20.5	†15
New Orleans, La.	*15.5	2	17.5	20.5	†15
Shreveport, La.	14	2	16	19	†14
Lafayette, La.	15	2	17	20	†14.5
Bristol, Tenn.	17.5	3	20.5	23.5	15.5
Chattanooga, Tenn.	17.5	3	20.5	23.5	13.5
Knoxville, Tenn.	17.5	3	20.5	23.5	16
Nashville, Tenn.	16	3	19	22	16
Memphis, Tenn.	15	3	18	21	15

*Includes 1c parish tax on gasoline.

†Kerosene prices in Louisiana include 1c state tax.

S. O. OHIO

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
All Ohio points	19	2	21	23	17

MAGNOLIA PETROLEUM

Muskogee, Okla.	15	3	18	21	11
Oklahoma City	15	3	18	21	13
Tulsa, Okla.	15	3	18	21	13
Fort Smith, Ark.	15	4	19	22	13
Little Rock, Ark.	15	4	19	22	13
Texarkana, Ark.	†18	4	†*22	†*22	15
Dallas, Tex.	†16	1	†17	†17	15
Fort Worth, Tex.	††14	1	††15	††15	13
Houston, Tex.	†17	1	†18	†18	15
San Antonio, Tex.	†16	1	†17	†17	14
El Paso, Tex.	†18	1	†19	†19	16

*Within city of Texarkana, Ark., the state tax on gasoline is 1c per gal. conforming with the Texas state tax. In Texarkana district outside of the city the 4c state tax applies.

†3c per gal. discount to dealers.

††1c per gal. discount to dealers at Fort Worth.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M. & P. Naphtha	Cleaner Naphtha
Chicago	18	20	20
Detroit	19.7	21.7	21.7
Kansas City	18.2	20.2	20.2
Milwaukee	18.7	*22.7	*22.7
Minneapolis	*22	*24	*24
St. Louis	17.9	19.9	19.9
New York	..	21	....

*Includes 2c state tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
ONTARIO					
Toronto	24.5	3	27.5	31	24
Ottawa	24.5	3	27.5	31	24
Cochrane	31.5	3	34.5	40	29
Ft. William	25.5	3	28.5	32	26.5
MANITOBA					
Winnipeg	27.5	3	30.5	34	26.5
SASKATCHEWAN					
Regina	30.5	0	30.5	35	29.5
ALBERTA					
Edmonton	29.5	2	31.5	35	28.5
Calgary	27.5	2	29.5	33	26.5
BRITISH COLUMBIA					
Vancouver	22	3	25	29	25
QUEBEC					
Montreal	24.5	3	27.5	31	24
Quebec City	26.5	3	29.5	33	26
Three Rivers	26.5	3	29.5	33	26
NEW BRUNSWICK					
St. John	27.5	3	30.5	35	27
Moncton	27.5	3	30.5	35	27
NOVA SCOTIA					
Halifax	27.5	3	30.5	35	27
Sydney	29.5	3	32.5	37	29
PRINCE EDWARD ISLAND					
Charlottetown	27.5	3	30.5	34	27

Note: In districts surrounding these points 1c additional is added to city price.

Foreign Buying is Slow, Weakness Of Gasoline is a Factor

By Special Correspondent
NEW YORK, Feb. 21

EXPORT petroleum business slumped again last week. Very little foreign buying developed although European consumers were keeping in close touch with the markets. Refiners attributed lagging foreign demand to the weakness in gasoline at the Gulf ports.

U. S. Motor was fairly firm along the Atlantic seaboard but the reports of weakness in Chicago and the Gulf markets caused many of the large buyers to temporarily withdraw from the eastern markets.

Kerosene was steady but dull. Interest in gas oil is slowly reviving. Prices were a trifle firmer. Lubricating oils were in better export demand at steady prices. Bunker oil was firmer but offered sparingly, both at the Gulf and New York.

Export Gasoline—New York

New York harbor refiners reported very little foreign buying interest in either bulk or cased gasoline last week. Prices were well held, however, regardless of the slump in export demand owing to the marked gain in domestic consumption.

A Scandinavian buyer was reported inquiring for 45,000 barrels of U. S. Motor, and prime and water white kerosene for April shipment but this is still hanging fire.

At New York harbor refineries, U. S. Motor was quoted at 12½ cents a gallon. Cased gasoline demand was lighter, although one of the leading Independents closed an order for 45,000 cases of U. S. Motor and 64-66 gravity 375 end point gasoline for March-April shipment to Australasia. The prices were withheld.

Export Gasoline—Gulf Ports

It was persistently reported that one of the leading refiners had sold 55,000 barrels of U. S. Motor; 64-66 gravity 375 end point gasoline and prime and water white kerosene for April shipment to France but prices and confirmation were lacking.

The market was soft throughout the week. U. S. Motor was offered at 10½ cents a gallon but several of the big refiners were willing to do 10 cents on a firm bid. Buying agents for foreign concerns are following the market more closely but apparently are not going to operate until the market shows indications of strengthening.

The asking price for 60-62 gravity 400 end point was 11 cents while 61-63 gravity 390 end point was offered at 11¼ cents a gallon. For 64-66 gravity the price was 12¼ to 12½ cents a gallon. U. S. Motor in cases was held at $1.95 to $2 while 64-66 gravity 275 end point was quoted at $2.20 a case in cargoes.

Export Kerosene—New York

Export kerosene business was mainly against contracts and on consignment last week. As in gasoline, very little bulk kerosene has been cleared from New York in some time. Most of the foreign buying has been confined to cased and barreled kerosene.

One of the leading Independent refiners booked an order for 40,000 cases of prime and water white kerosene for April shipment to Orient but prices were not disclosed. A South American buyer purchased 15,000 cases of water white kerosene for March shipment while a near eastern concern has been negotiating for 30,000 cases of prime and water white for March shipment. Bulk prime white 41-43 gravity was offered at 9 cents while 43-45 water white was quoted at 9¼ cents a gallon refinery.

Export Kerosene—Gulf Ports

Kerosene was easier at Gulf ports last week but refiners were quoting the same prices as those that prevailed at the close of the previous week. Prime white was freely offered at 7½ cents a gallon while water white was steady at 9 to 9¼ cents a gallon.

Foreign buying was disappointing and no bulk sales other than above mentioned were reported. Cased kerosene demand was lighter, although a large Independent refiner sold 75,000 cases of prime and water white kerosene for March-April shipment to the Far East at $1.60 and $1.70 respectively. There is a good movement to the west coast of Africa against old orders but no fresh buying emanated from this source.

EXPORTS FROM TAMPICO DISTRICT

Company	December 1926	January 1927
Transcontinental Petroleum Co. (Standard of New Jersey)...	916,456	1,050,997
Pan American Eastern Oil Co.	1,915,361	1,790,408
Mexican Eagle Oil Co. (El Aguila)	1,258,800	698,675
Cia. Mexicana Holandesa "La Corona"	395,012	370,833
The Texas Co. of Mexico, S.A.	27,384	65,303
Mexican Gulf Oil Co.	241,017	290,508
Sinclair Mexican Companies.	485,888	593,136
East Coast Oil Co. of Mexico S. A., (Southern Pacific)	57,923	104,270
Mexican Oil Products Co.	23,757	3,435
Pierce Oil Corp.	62,355	61,853
Mexican Atlas Oil Co.	71,740	44,895
New England Fuel Oil Co.	41,437	.....
Panuco Boston Oil Co.	97,826	.....
La Espuela Oil Co.	17,734	.....
Totals	5,612,690	5,074,313

Bunker Oil—New York

Bunker oil business was handicapped by the shortage of spot supplies. Most of the big refiners reported a steady influx of inquiries but most of the orders were turned down. Refiners are having all they can do to take care of their outstanding contracts. There were rumors of an impending advance but on Saturday grade C was still quoted at $1.75 a barrel at the refineries, and $1.81½ a barrel f.a.s. New York harbor. Diesel oil demand was slightly more active at $2.40 a barrel refinery.

Bunker Oil—Gulf Ports

Gulf refiners reported bunker oil offerings very meagre. Mexican bunker oil is growing very scarce, owing to the shortage of Panuco crude oil. At New Orleans grade C was quoted at $1.65 a barrel for bunkering while the cargo price was nominal at $1.50 to $1.55 a barrel. At Tampico the price for bunkering was $1.60 a barrel f.o.b Tampico including taxes but no cargoes were offered. Heavy Panuco crude oil was nominal at $1.40 a barrel, in cargoes, taxes to be added, f.o.b. Tampico.

Gas Oil—New York

With the spring season rapidly approaching, refiners showed more confidence in the market and there was less price shading than during the preceding week. Leading refiners were asking 6¼ cents a gallon for 36-40 gas oil in bulk at the refineries while 28-34 was quoted at 5¾ cents a gallon same basis. Domestic demand was more active last week. Buyers with export connections showed little interest at these prices.

Gas Oil—Gulf Ports

One of the leading Independent refiners was working on an inquiry from the United Kingdom for 35,000 barrels of translucent gas oil for March shipment. Foreign buyers, as a rule, showed very little interest in gas oil. Stocks on hand are fairly large but refiners are confident of the future in view of the approach of the cracking season. For 32 plus dark gas oil the price was 4⅞ cents a gallon. Refiners were asking from 5⅛ to 5¼ cents for 26-28 red translucent.

Lubricants—New York

Pennsylvania cylinder oils were in much better domestic demand but foreign buying orders were chiefly for small quantities and no sizable movements were reported. Unfiltered 600 s.r. Penn-

sylvania cylinder oil was in slightly better demand at 19½ cents a gallon. Spindle oils were moving in a light spasmodic way at unchanged prices from a week ago. Neutral oils showed a firmer tone on Friday and Saturday.

Lubricants—Gulf Ports

Most of the big refiners reported a better movement in zero cold test oils last week. Domestic consumption has been large, and while production has been fairly heavy there has not been any accumulation of stocks to speak of. Prices have been steady for some time and no fluctuations were reported last week. The bulk of the export buying was in very small quantities but prices were well held. No cargo sales were heard of. British and French buyers have been confining their purchases to lots of 1,000 barrels and less.

Wax Market—New York

Waxes were steadier towards the close of last week. Business was far from large but buying interest was undoubtedly keener and there was less competition among sellers. Export buying was very light but domestic consumers were operating on a larger scale. Stocks on hand are fairly large. A Spanish buyer was inquiring for 50 tons of white crude scale wax but whether this was closed or not was not made known. South American buyers are following the market closely but are still operating hand-to-mouth.

Wax Market—Gulf Ports

Gulf refiners reported very quiet conditions in the paraffin wax market. Export demand was confined to very small quantities and no sales to speak of developed. Local buying was confined to small lots. Prices were steady. White crude scale 122-124 A.m.p. was offered at 4.40 cents a pound while 122-124 semi-refined was quoted at 4.45 cents a pound. Yellow 122-124 A.m.p. was freely offered at 4⅜ cents a pound but there was very little interest in this grade. Fully refined waxes were quoted as follows: 123-125 and 125-127 A.m.p. 4⅞ cents; 128-130 A.m.p. 5 cents; 133-135 A.m.p. 5⅝ cents and 135-137 A.m.p. at 6 cents a pound.

Petrolatums

Demand for lily white petrolatum was slightly more spirited last week. Export buying was on a slightly larger scale. Consumption of snow white is gaining and prices were a trifle firmer. Medicinal oils were quiet and unchanged.

Empire Plant Resumes Operations

TULSA, Feb. 19.—Operations have been resumed at the Cushing plant of the Empire Refineries, Inc. The skimming plant section of the Cushing refinery was damaged by fire late last year and required extensive rebuilding.

Complete Export Markets

New York Export Market

GASOLINE	Feb. 21	Feb. 14
U. S. Motor Bulk Ref.	12¼-12¼	12¼-12¼
U. S. Motor cases	27.40	-27.40
KEROSENE		
43-45 150 W.W. Bulk Ref.	09¼	-09¼
41-43 Prime White Bulk Ref.	09.	-09.
43-45 150 W.W. Cases	19.15	-19.15
42-44 110 S.W. Cases	18.65	-18.65
GAS OIL		
36-40, Bulk Refinery	-06¼	-06¼
28-34, Bulk Refinery	-06	-05¾
MEXICAN BUNKER OIL		
Grade C. f. o. b. ref. Bulk	-1.75	-1.75
Diesel Oil f. o. b. ref. Bulk	-2.50	-2.40

LUBRICATING OILS

The following prices are cooperage basis f. o. b. New York, products being manufactured by inland refineries.

CYLINDER OILS (Bbls.)

1 inch Immersion Test; All Penna. Products

Bright Stock dark	43½	-43½
Filtered D 600	34½	-34½
Filtered E 600-Warren	28	-28
Unfiltered 600 s. r.	19 -20	19½-20
Unfiltered 650 s. r.	24½	-24½
600 Flash s. r.	28	-28
630 Flash	38	-38

RED PARAFFIN (Bbls)

(Viscosity at 70)

300 vis. No. 5 color	-19½	-19½
250 vis. No. 5 color	-18	-18
475 Viscosity.... No. 5 color	-23	-23

NEUTRAL OILS (Bbls.)

(Viscosity at 70)

200 vis. at F.Pale. No. 3 color	-39	-39
180 Pale. No. 3 color	-37	-37
150 Pale. No. 3 color	-35	-35

BLACK OIL (Bbls.)

25-30 cold test	13¼	-13¼
15 cold test	14¼	-14¼

MEDICINAL OILS

(Includes Price of Drums)
(Penna. Stocks)

	Feb. 21	Feb. 14
Domestic 875-.885 s. g.	- .85	- .85
Domestic 865-.870 s. g.	.75- .80	.75- .80
Russian 885-.890 s. g. 325-330 vis.	1.00-1.10	1.00-1.10

WAXES

(Penna. Stocks)
(In Cents per Pound, F. A. S. Carload Lots)

WHITE CRUDE SCALE (Shipped in Bbls.)		
122-124 A. m. p.	-04½	-04½
124-126 A. m. p.	-04½	-04½
MATCH		
105-108 A. m. p.	.05¾	.05¾
FULLY REFINED (Shipped in Burlap Bags)		
123-125 A. m. p. Philadelphia.	-05	-05
125-127 A. m. p.	-05	-05
128-130 A. m. p.	-05⅜	-05⅜
130-132 A m. p.	-05⅜	-05⅜
133-135 A. m. p.	-05¾	-05¾
135-137 A. m. p.	-06¼	-06¼
YELLOW CRUDE SCALE		
124-126 A. m. p.	.04¾	-04¾

PETROLATUMS

(Penna. Stocks)
Per Pound

Dark Green	01⅞	01¾
Veterinary	03⅛	03
Light Amber	03¾	03⅛
Dark Amber	03⅜	03¼
Cream	06	06
Lily White	07¾	07⅛
Snow White	08⅜	08⅛

Gulf Export Market

GASOLINE
F. O. B. Seaboard
(Shipments of 20,000 Bbls. and over)

	Feb. 21	Feb. 14
U. S. Motor, Bulk	10¾	10¾-.10⅛
60-62 400 e. p. Bulk	11	-.11
61-63 390 e. p. Bulk	11¼	-.11¼
64-66 375 e. p. Bulk	12 -12¼	-.12¼
U. S. Motor, Cases (cargo lots)	2.00	2.00
64-66 Cases (cargo lots)	2.20	2.20
KEROSENE		
Water White, 43-45 Bulk	.09 -09¼	.09 -09¼
Prime White, 41-43 Bulk	07½	-07½
Water White, cases (cargo lots)	1.70	1.70
Prime White, cases (cargo lots)	1.60	1.60
DOMESTIC GAS AND BUNKER OIL		
26-28, gravity, Bulk*	.05-05⅛	05 -05⅛
32 plus, bulk, Dark	04⅞	-04⅞
Grade C, Bunker oil	1.65	-1.65
Cargoes	1.55	-1.55

*Translucent through neck of a 4 oz. bottle.

MEXICAN CRUDE AND BUNKER OILS
F. O. B. Steamer Tampico

Heavy, Panuco crude Taxes to be added	nominal	nomina
Grade C, Bunker oil Taxes paid cargoes	nominal	nominal
Grade C, Bunker oil, F. O. B. Tampico, For Bunkering Purposes, taxes paid	1.60	-1.60

SOUTH TEXAS
(Viscosity at 100° F; cold test 0)
(Tanker, F. O. B. Houston)

*LUBRICATING OILS	Feb. 21	Feb. 14
100 Vis. No. 2 Unfiltered Pale	08	08
150 Vis. No. 2½ Unfiltered Pale	10	10
200 Vis. No. 3 Unfiltered Pale	10½	10½
300 Vis. No. 3 Unfiltered Pale	12	12
500 Vis. No. 3½ Unfiltered Pale	14	14
200 Vis. No. 5½ Red Oil	09½	09½
300 Vis. No. 5½ Red Oil	10½	10½
500 Vis. No. 6 Red Oil	12	12

*These prices are entirely nominal owing to wide fluctuations.

Pacific Export Market

(Cargo lots quotations at seaboard, Los Angeles Gravity test on A. P. I. scale)

	Feb. 21	Feb. 14
Gasoline, U. S. Motor— 53°-55°	8½- 9	08½- 9
Gasoline, U. S. Motor— blends and special cuts	9½-11	9¼-10
Gas Oil, 30°—34° per bbl.	$1.22½-1.30	1.30-1.35
Diesel Oil, 27°—plus per bbl.	$1.00-1.15	1.00-1.15
Bunker Oil, 14°—18° bbls.	$ .80-1.00	.80-1.00
Fuel Oil, 14°—18° per bbl.	$ .80-1.00	.80-1.00
Kerosene, W. W. 38°—40° per gal., 125-150 flash test	.06 -06½	.05½- .06
Cased Goods		
Gasoline, U. S. Motor	$2.25-2.40	-2.25
Kerosene, W. W. 38°—40° per case, 125-150 flash	$1.50-1.60	$1.45-1.55

N. Y. Domestic Market

The following light oil, gas and fuel oil prices are F. O. B. New York refineries, being products made from Domestic (including California) and Mexican Crudes.

	Feb. 21	Feb. 14
Gasoline:—		
California Motor, cargoes laid down N. Y.	11¾-12	11¾-12
U. S. Motor Tank Cars Delivered greater N.Y.	13¾-13½	13½-13¾
U. S. Motor Tank Cars Bayonne	12¾-12½	12½-12¾
U. S. Motor Tank Cars, *Atlantic Seaboard Terminals	12¾-12½	12½-12¾
Kerosene:—		
43-45 150 W. W. Tank Cars de'd greater N.Y.	-10¼	-10¼
41-43, Bulk Ref. Prime	-09	-09
Fuel Oils:—		
Grade C Bunker f.o.b. N.Y. Ref	-1.75	-1.75
Diesel Oil f. o. b. Refinery	-2.50	-2.40
Gas Oil, 36-40, Bulk Refinery	-06¼	-06¼
Gas Oil, 28-34, Bulk Refinery	-06	-05¾
Furnace Oil, 38-42, Bulk, Refinery	-07½	-07½

*New York, Philadelphia, Portsmouth, Va. Charleston, S. C.

Crude Oil Prices, as Posted by Major

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3.40
Bradford District Oil in National Transit Lines (Bradford District)	3.40
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.30
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.30
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.25
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	3.10
Keister Grade in National Transit Lines (Butler Co.)	1.60
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.90
Corning Grade in Buckeye Pipe Lines (Ohio)	2.25
Corning, O. heavy grade	2.15
*Somerset Oil in Cumberland Pipe Lines (Kentucky)	2.00
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

*Somerset oil run prior to Oct, 1, 1922 takes price of 6 cents lower than above quotations.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky. oil in Stoll lines	$2.00

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Wooster	$2.25	Plymouth	$1.63
Lima	2.21	WesternKentucky	1.83
Waterloo	1.35	*Canadian Petrolia	2.61
Indiana	1.98	*Oil Springs	2.68
Princeton	2.10	*Posted by Imperial Oil Ltd.	
Illinois	2.10		

OKLAHOMA, KANSAS And NORTH TEXAS

Prices of Prairie Oil & Gas Co.
(In Oklahoma, Kansas, North and East Central Texas)

Effective Nov. 17, 1926

28-28.9	$1.50	34-34.9	$1.80
29-29.9	1.55	35-35.9	1.85
30-30.9	1.60	36-36.9	1.90
31-31.9	1.65	37-37.9	1.95
32-32.9	1.70	38-38.9	2.00
33-33.9	1.75	39-39.9	2.05
40-40.9	$2.10	47-47.9	$2.45
41-41.9	2.15	48-48.9	2.50
42-42.9	2.20	49-49.9	2.55
43-43.9	2.25	50-50.9	2.60
44-44.9	2.30	51-51.9	2.65
45-45.9	2.35	52 and above	2.70
46-46.9	2.40		

Above schedule met by Sinclair and Gulf on Nov. 17

Humble Oil & Refining Co. Prices
(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Morar and Nocona crudes all in Texas.)

On Nov. 1, Humble first posted the price schedule adopted by Prairie on Nov. 17, except that Humble is paying 5c less for each degree of gravity on oil below 28°.

Mirando, Tex. $1.25

The Texas Co. posted same gravity and price schedule in Oklahoma, North, North Central and Central Texas on Nov. 5 as Humble, excepting it is paying $1.40 for all oil below 28° gravity in Texas fields.

Magnolia Petroleum Co.
(In Oklahoma, Kansas and North and East Central Texas)

Same grades and prices as posted by Prairie excepting that Magnolia is paying $1.30 for all oil below 28° gravity, effective Nov. 2.

Corsicana heavy	$1.25
Iatan, Tex.	1.50

Carter Oil Co.
(Oklahoma and Kansas)

On Nov. 2, Carter posted same gravity and price schedule as Prairie is now maintaining.

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Hutchinson, and Carson Counties $1.25

Gray County:		Wheeler County:	
28-28.9	$1.00	28-28.9	$ .90
29-29.9	1.05	29-29.9	.95
30-30.9	1.10	30-30.9	1.00
31 31.9	1.15	31-31.9	1.05
32-32.9	1.20	32-32.9	1.10
33-33.9	1.25	33-33.9	1.15
34-34.9	1.30	34-34.9	1.20
35-35.9	1.35	35-35.9	1.25
36-36.9	1.40	36-36.9	1.30
37-37.9	1.45	37-37.9	1.35
38-38.9	1.50	38-38.9	1.40
39-39.9	1.55	39-39.9	1.45
40-40.9	1.60	40-40.9	1.50
41-41.9	1.65	41-41.9	1.55
42-42.9	1.70	42-42.9	1.60
43-43.9	1.75	43-43.9	1.65
44 and above	1.80	44 and above	1.70

Magnolia Petroleum Co. posted flat price of $1.25 for all Panhandle Crude on Sept. 22, and Kay County Gas Co. on Oct. 4.

WEST TEXAS

(Crane, Upton and Crockett Counties)
Humble Oil & Refg. and Kay County Gas Co.

Below 26	$ .80	31-31.9	$1.10
26-26.9	.85	32-32.9	1.15
27-27.9	.90	33-33.9	1.20
28-28.9	.95	34-34.9	1.25
29-29.9	1 00	35-35.9	1.30
30-30.9	1.05	36 and above	1.35

NORTH LOUISIANA—ARKANSAS FIELDS

***Prices of Standard Oil Co. of Louisiana**
Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton and De Soto
Effective Nov. 4

Below 28	$1.40	40-40.9	$2.10
28-28.9	1.50	41-41.9	2.15
29-29.9	1.55	42-42.9	2.20
30-30.9	1.60	43-43.9	2.25
31-31.9	1.65	44-44.9	2.30
32-32.9	1.70	45-45.9	2.35
33-33.9	1.75	46-46.9	2.40
34-34.9	1.80	47-47.9	2.45
35-35.9	1.85	48-48.9	2.50
36-36.9	1 90	49-49.9	2.55
37-37.9	1.95	50-50.9	2.60
38-38.9	2 00	51-51.9	2.65
39-39.9	2.05	52 and above	2.70
Smackover, below 24			$1.10
" 24-24.9			1.35
" 25-25.9			1.40
" 26-26.9			1.45
" 27 and above			1.50
Bellevue			1.40
Cotton Valley			1.20
**Urania, La			1.10
†Calion (East El Dorado)			.95

*Gulf and La. Oil Refg. Corp. met S. O. La. prices on Nov. 4 and The Texas Co. and Magnolia Pet Co. met on Nov. 5.

**Posted by Louisiana Oil Refining Corp.

†Posted by Gulf.

STEPHENS, ARKANSAS

Posted by Atlantic Oil Producing Co. and Louisiana Oil Refining Corp.

Below 28	$1.30	30-30.9	$1.50
28-28.9	1.40	31-31.9	1.55
29-29.9	1.45	32 and above	1.60

GULF COASTAL and SPINDLETOP

Posted by Humble Oil & Refining Co.

Grades A	$1.40	29-29.9	$1.65
Grades B:		30-30.9	1.70
Below 25	1.40	31-31.9	1.75
25-25.9	1.45	32-32.9	1.80
26-26.9	1.50	33-33.9	1.85
27-27.9	1.55	34-34.9	1.90
28-28.9	1.60	35 and above	1.95

Fields classified as A and B are Goose Creek, Hull, Liberty, West Columbia, Orange, Boling and Pierce Junction. All other fields are Grades A only.

Magnolia Petroleum is paying same prices in Spindletop as Humble, except that its top grade is 31-31.9 at $1.75, effective Nov. 16.

Domestic Gasoline Sales Slow Up at Week-End

By Special Correspondent

NEW YORK, Feb. 21.—Although the market for bulk gasoline started the week very firm, the tone was much easy on Friday and Saturday due to the easier markets in the Gulf section and at Chicago. Most of the Atlantic seaboard refiners started off quoting U. S. Motor, bulk refineries at 12½ cents a gallon but competition was keener as the week progressed and business could have been done in several quarters at 12¼ cents a gallon, on Friday.

In tank cars delivered to nearby buyers, the price was 13¼ to 13½ cents a gallon. Demand was disappointing last week which was largely attributed to the very unfavorable weather conditions. Most of the big jobbers have already contracted for their early spring requirements. Tankwagon prices were steady.

Gulf refiners reported a sluggish domestic gasoline market. Buying was almost entirely hand-to-mouth and no sales worthy of special mention were reported. At the refineries, U. S. Motor was freely offered at 10¼ to 10½ cents a gallon, while in tank cars delivered to the nearby trade the price ranged from 11¼ to 11½ cents a gallon. Tankwagon prices were a little firmer regardless of the weakness in bulk gasoline but no changes in prices were announced.

Kerosene was in better, although routine demand last week along the Atlantic seaboard. Jobbing demand has been fully up to expectations. Home consumption has been large and refiners are now preparing to take care of the big spring demand from operators of kerosene burning agricultural equipment.

At the seaboard refineries prime white 41-43 gravity was steady at 9 cents a gallon and in tankcars delivered to the nearby trade at 10 cents a gallon. Water white 43-45 gravity was held at 9¼ cents a gallon refinery and 10¼ cents delivered in tankcars to nearby buyers.

Gulf refiners reported a more spirited domestic demand for prime white kerosene which was quoted at 7½ cents a gallon refinery and 8½ cents delivered in tankcars to nearby destinations. The consumption of kerosene has been holding up well, although stocks are still fairly large owing to the slump in export buying.

Crude Price Changes

OIL CITY, Pa.—On Feb. 19 Joseph Seep Purchasing Agency reduced Somerset, Cabell and Keister crude 20 cents per barrel. New prices are: Somerset, $2; Cabell, $1.90, and Keister, $1.60 per barrel at wells. Other eastern crudes were unchanged.

Last previous change on Somerset was 30 cent cut on Nov. 18, 1926 and on Jan. 31, the Somerset light classification was discontinued and all Somerset grade crude posted at $2.20. Last previous change on Cabell was 30 cent cut and on Keister 25 cent cut, both on Nov. 18.

LOUISVILLE, Ky.—On Feb. 19 Stoll Oil Refining Co. reduced Oil City, Ky., crude 20 cents per barrel in Stoll pipe lines, to $2 per barrel at wells.

Purchasers, in All Fields (in Effect, Feb. 21, 1927)

GULF COASTAL and SPINDLETOP
Prices of The Texas Co.

Grades A	$1.40	*Grades B	$1.40
‡Grades B (light crude):			
35-35.9	$1.95	38-38.9	$2.10
36-36.9	2.00	39-39.9	2.15
37-37.9	2.05	40 and above	2.20

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on all below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS
Prices of Ohio Oil Co. and Midwest Refining Co.

‡Salt Creek	29-29.9	$1.55
" "	30-30.9	1.60
" "	31-31.9	1.65
" "	32-32.9	1.70
" "	33-33.9	1.75
" "	34-34.9	1.80
" "	35-35.9	1.85
" "	36-36.9	1.90
" "	37 and above	1.95
Elk Basin		2.00
Grass Creek light		2.00
Big Muddy		$1.85
Lance Creek		2.00
Rock Creek		1.85
Mule Creek		1.45
Rex Lake		1.25
‡Osage		2.00
‡Cat Creek, Mont		2.00
Sunburst, Mont		1.35
‡Hogback, N. Mex		2.45
Artesia, N. Mex		1.65

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA
Standard Oil Co. of California

Gravity	Signal Hill Huntington Beach	Ingle-wood Torrance	Whittier La Habra	Newhall, McKittrick, Kern River	Olinda-Brea Canon, Richfield	Athens-Rosecrans Dominguez	Monte-bello	Coyote Hills	Santa Fe Springs	Midway Sunset Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	.....	$ .85	$ .85	.....	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.87	.87	.85	.75	.87	.....	.85	.85	.....	.75	.75	.75	.75	.85	.85
16-16.9	.90	.90	.85	.75	.90	.....	.85	.85	.....	.75	.75	.75	.75	.85	.85
17-17.9	.94	.94	.85	.75	.94	.....	.85	.85	.....	.75	.75	.75	.75	.85	.85
18-18.9	.98	.98	.86	.75	.98	.....	.86	.86	.....	.75	.75	.75	.75	.85	.85
19-19.9	1.04	1.04	.87	.75	1.04	.....	.87	.87	.....	.75	.75	.75	.75	.85	.85
20-20.9	1.10	1.10	.89	.....	1.10	.....	.89	.90	.....	.82	.82	.79	.78	.90	.90
21-21.9	1.16	1.16	.91	.....	1.16	.....	.91	.98	.....	.90	.90	.86	.81	.97	.97
22-22.9	1.22	1.22	.94	.....	1.22	.....	.94	1.06	.....	1.00	1.00	.93	.85	1.04	1.04
23-23.9	1.28	1.28	.....	.....	1.28	.....	.97	1.14	.....	1.11	1.11	1.00	.89	1.11	1.11
24-24.9	1.34	1.34	.....	.....	1.34	$1.34	1.01	1.22	$1.02	1.22	1.22	1.07	.93	1.18	1.18
25-25.9	1.40	1.40	.....	.....	1.40	1.40	1.05	1.30	1.08	1.33	1.33	1.14	.97	1.25	1.25
26-26.9	1.46	1.46	.....	.....	1.46	1.46	1.09	1.38	1.16	1.44	1.44	1.21	1.01	1.32	1.32
27-27.9	1.52	1.52	.....	.....	1.52	1.52	1.13	1.46	1.24	1.55	1.55	1.28	1.05	1.39	1.39
28-28.9	1.58	1.58	.....	.....	1.58	1.58	1.17	1.54	1.32	1.66	1.66	1.35	.....	1.46	1.46
29-29.9	1.64	.....	.....	.....	1.64	1.64	1.21	1.62	1.40	1.77	1.77	1.42	.....	1.53	1.53
30-30.9	1.70	.....	.....	.....	1.70	1.70	1.25	1.70	1.48	1.88	1.88	1.49	.....	1.60	1.60
31-31.9	1.76	.....	.....	.....	.....	1.76	.....	.....	1.60	1.99	1.99	1.56	.....	.....	1.67
32-32.9	1.84	.....	.....	.....	.....	1.84	.....	.....	1.72	2.10	2.10	1.63	.....	.....	1.73
33-33.9	.....	.....	.....	.....	.....	1.92	.....	.....	1.84	2.21	2.21	1.70	.....	.....	1.79
34-34.9	.....	.....	.....	.....	.....	2.00	.....	.....	1.96	.....	2.32	1.77	.....	.....	1.85
35-35.9	.....	.....	.....	.....	.....	2.08	.....	.....	2.08	.....	.....	1.84	.....	.....	1.92
36-36.9	.....	.....	.....	.....	.....	2.16	.....	.....	2.16	.....	.....	.....	.....	.....	.....
37-37.9	.....	.....	.....	.....	.....	2.24	.....	.....	2.24	.....	.....	.....	.....	.....	.....
38-38.9	.....	.....	.....	.....	.....	2.34	.....	.....	2.34	.....	.....	.....	.....	.....	.....
39-39.9	.....	.....	.....	.....	.....	2.44	.....	.....	2.44	.....	.....	.....	.....	.....	.....
40-40.9	.....	.....	.....	.....	.....	2.54	.....	.....	.....	.....	.....	.....	.....	.....	.....
41-41.9	.....	.....	.....	.....	.....	2.64	.....	.....	.....	.....	.....	.....	.....	.....	.....
42-42.9	.....	.....	.....	.....	.....	2.74	.....	.....	.....	.....	.....	.....	.....	.....	.....

Santa Maria and Ventura Posted by Union Oil Co.

*Union Oil Co. also purchases Long Beach Crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees and in Santa Fe Springs, on gravities ranging from 20 to and including 28.9 degrees.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are the average market prices for the week on materials used by refiners and compounders f. o. b. shipping point as effective this date.

Refiners' Supplies

	Feb. 21	Feb. 14
Soda Ash light 58% bags.cwt.	$1.32½	$1.32½
Silicate of Soda 60 deg. drums.....cwt.	-$1.65	-$1.65
Sal Soda wks.....	.90- 1.10	.90- 1.10
Caustic Soda 76% solid..cwt.	- 3.00	- 3.00
Chloride of Lime.....cwt. works.....	- 2.00	- 2.00
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point.....per ton	10.50-11.00	10.50-11.00
Liquid Chlorine tank cars works.....lb.	- .04	- .04

Compounders' Supplies (Open Market)

Vegetable Oils—

Linseed carloads spot....lb.	10.4	10.4
March	10.4	10.4
Tanks, spot	9.6	9.6
*Soya Bean Tanks, Coast.lb.	09½	09½
Castor Oil—		
No. 1 Carlots, Bbls	-.14	-.14
No. 3 Carlots, Bbls	-.13½	-.13½
Animal Oils—		
English Degras	-.05¾	-.05¾
Domestic Degras, bbls., carloads.....lb.	-.04¾	-.04¾
*Horse.....lb.	-.09	-.09
Oleic Acid—		
Dist. Bbls.....lb.	.09½-.09¾	.09½-.09¾
Saponified Bbls.....lb.	.09¾-.10	.09¾-.10
Lard Oils—		
Prime		
Winter Strained. to 1⅛ffa.40-45c.t.lb.	.14⅞	.15
Extra Winter Strained. 2 to 4½ffa.40-45c.t.lb.	.13¾	.13¾
Extra..... 4 to 5 ffa.40-45c.t.lb.	.12¼	.11¾
Extra No.1. 7 to 10 ffa.40-50c.t.lb.	.11	.10¾
No. 1.....15 to 18 ffa.40-45c.t.lb.	.10¾	.10½
No. 2.....22 to 23 ffa.40-45c.t.lb.	.10¼	.10
Prime Edible Tallow under 1⅛ffa. 40-45c.t.N.Y.....lb.	-.08½	-.08¾
Tallow acidless.....lb.	-.10¾	-.10¾
Lard Stearine.....lb.	-.16	-.16
Oleo Stearine.....lb.	-.09¾	-.09½
Neatsfoot Oil—		
Pure.....bbls.-lb.	.12¾	.12¾
Extra.....do lb.	.11	.10¾
No. 1.....bbls.-lb.	.10¾	.10½
Cold pressed.....lb.	.16¼	.16¾
Fish Oils—		
Menhaden Oil Light pressed.....gal.	-.58	-.58
White.....gal.	-.63	-.63
Yellow bleached.....gal.	-.61	-.61
Whale, extra winter bleached.....gal.	-.82	-.82
Naval Stores—		
Turpentine, N. Y.....gal.	-.71½	-.78
Turpentine†.....gal.	- 63½	-.72
Rosin, B. N. Y.....bbl.	11.50	11.75
Rosin, F. N. Y.....bbl.	12.25	12.35
Rosin, B†.....bbl.	10.00	10.35
Rosin, F†.....bbl.	10.60	10.75
Rosin Oil 1st run.....gal.	.67	.67
Rosin Oil 2nd run.....gal.	.72	.72
Pine Tar—		
Kiln Burnt.....bbl.	16.00	16.00
Retort.....bbl.	16.00	16.00

†Savannah, Ga., market.
*Nominal.

Alcohol—Denatured—		
Formula 5		
Bbls.....gal.	-41	-41
Drums.....gal.	-34	-34

Farmers, Refused Q. D. A., Form Cooperatives in Illinois

CHICAGO, Feb. 21

A FARMERS' cooperative oil company movement is gaining popularity in Illinois. Cooperative oil companies have been organized in six of the state's 102 counties, and are being organized in six other counties. In 97 Illinois' counties are farmers' organizations that are affiliated with the Illinois Agricultural Association which has headquarters in Chicago. The state organization has 65,000 paying members.

Although the oldest oil marketing organization of the kind in the state, the one at Carthage, is three years old, the movement was given great impetus by the quantity discount agreements by the Standard Oil Co. of Indiana about 18 months ago, according to J. R. Bent of the I. A. A. As soon as the retail Q. D. A. was launched, Mr. Bent said, farmers in several counties tried to get the benefit of it when they were refused they resorted to another form of collective buying.

The Standard Oil Co. has never recognized cooperative, fraternal or religious organization as eligible for a Q. D. A. contract, at least not in Illinois, so when a group of farmers discovered that they were not accorded the same opportunity to economize as the telephone company or a big packing house they decided to pool their purchases and buy in car lots. The idea has spread rapidly.

Mr. Bent said the state association did not promote the organization of any kind of cooperatives, whether elevators, general stores or oil companies. He said its purpose was to be helpful to its members in every way, vocationally, commercially and socially. So whether it is a store, an elevator or an oil company, the I. A. A. gives county organizations help and counsel. The Chicago office helps such institutions to finance themselves and get off on a business basis.

"THE I. A. A. has a basic plan upon which a farmers' cooperative oil company may be organized," Mr. Bent said, "and unless those general principles are observed no county group can get service from the main office. These plans call for adequate financing, a conventional organization of officers, directors and stockholders, adequate physical equipment, a businesslike management and a policy of observing prevailing prices in the neighborhood where they do business.

"Each company must have two kinds of stock; preferred stock issued to the persons who put up the money and common stock to the members of the county farm bureau. Members and other patrons pay cash for what they get, and at the end of the year when all bills are paid and preferred stockholders have received their dividends, the surplus (if any) may be distributed to common stockholders on a patronage ratio basis."

Mr. Bent related that the company at Carthage "got off to a bad start" by making three basic mistakes. It was inadequately financed; it was financed with $100 notes, protecting borrowed money from farmers, instead of stock; and it soon had its operating capital tied up on its books by issuing credits carelessly.

Mr. Bent said he was opposed to filling stations as unnecessary for a farmers' institution, although several of the groups operate them, notably the organization at Springfield. He said some thought had been given to the idea of having all farmers' cooperatives market a uniform product under a common brand or trade-mark throughout the state.

Fight Impends for the Control Of American Republics Corp.

HOUSTON, Feb. 21

ANOTHER chapter in the affairs of the American Republics Corp., holding company for various oil industry subsidiaries, promises to be written at the annual stockholders' meeting, Feb. 24.

There will be brought to a head at that time a fight for control of the company, which Tom P. Lee of Houston has charged "is under the one-man control" of J. S. Cullinan, its president. Mr. Lee resigned the vice-presidency of the company Nov. 1, giving his reason that he could "no longer subscribe to the organization plans and business policies, which seem to me to be not for the best interests of the company but arbitrarily dictated by the president of the corporation and without consideration of, or approval by, the other members of the board of directors." In a statement he added he would retain his membership on the board of directors, but would "at all times feel free to take such action as I consider necessary in an effort to protect the best interests of the corporation and the subsidiary companies."

Mr. Lee has since issued a letter to stockholders requesting proxies and calling for the election at the next annual meeting of a board of directors "who shall be truly representative of at least 75 per cent of the stock ownership." In the letter he asked that proxies be sent to himself, Will C. Hogg and Ed F. Woodward, all of Houston, who have been among the six largest stockholders in the corporation since its organization.

The American Republics Corp. owns capital stock in more than 20 companies, its interest in most cases amounting to control. These include the Republic Production Co., the Papoose Oil Co., the Petroleum Iron Works, Pennsylvania Car Co., Pennsylvania Tank Line and others.

IN asking for proxies, Mr. Lee recites that "until recently the writer personally directed our oil operations, during which time the president of the American Republics Corp. referred to himself as 'the perpetual loafer'; therefore, I may be pardoned for feeling that the success of the oil companies was due to my efforts and direction more than to any other one person. This fact was recognized by the president of the American Republics Corp. on occasions such as when he introduced me to his New York banking acquaintances as the man that ran $30,000 into $30,000,000 in a few short years."

Mr. Lee referred to "an oil and gas lease contract made with Burt & Griffith on their then unincumbered acreage in the Stevenson one-third league of land adjoining the Humble oil field on the south and east. This lease was transferred at cost, $10,000, to a company known as the Farmers Petroleum Co., chartered in May, 1914, with a paid up capital of $30,000, one-third being subscribed and paid by me (Lee) and two-thirds by the Fidelity Trust Co., representing Messrs. Cullinan, Autry, Hogg and others." Out of this beginning grew the American Republics Corp., which has outstanding $10,000,000 of $100 par, 7 per cent preferred stock, and approximately 250,000 shares of no par common stock.

In the letter he refers to his resignation as president of the Republic Production Co., and his being elected vice-president and director of the American Republics Corp., "at which time an oil operating committee was created, composed of the presidents of the producing companies, with myself as chairman." He said he continued to assist in directing operations through this committee when, at the direction of the president (and for reasons unknown to me) I withdrew as chairman of the oil operating committee."

ON Sept. 15, last, he wrote the board recommended "that in the interest of further coordination, efficiency and economy, all oil producing companies be grouped under one capable, efficient, energetic head, with the aim that such a man would spend the major part of his time in the fields, not only to improve operating conditions but also to develop new production and concentrate expenditures and activities where best results seem probable."

He recited that "the immediate reaction to this recommendation was that the president of the American Republics Corp., without expressing any reasons therefore, gave the board to understand

Transactions In Oil Shares on New York Stock Exchange

1925 High	1925 Low	1926 High	1926 Low		Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Feb. 19 Sales	First	High	Low	Last	Ch'ge
.....	.....	32⅞	24¼	(sh)	814,800	N.P.	Amerada Corp.	50cQ	Jan. 31, 27	19,300	36⅝	37	35	35	— 1½
79¾	48	74	39⅞	(sh)	200,000	N.P.	American Republics	.....	.....	100	51¼	51¼	51¼	51¼	— 8⅞
47¼	32	59⅛	44¾	$	56,000,000	$ 25	Associated Oil	50cQ	Dec. 24, 26	500	49¾	50¼	49½	50⅛	+ ¾
117½	95½	128⅜	97		50,000,000	100	Atlantic Refining	.....	June 16, 24	11,800	112	115¼	110	111¾	— ¼
117¾	113½	120	115½		20,000,000	100	do pfd	$1¾Q	Feb. 1, 27	100	116½	116½	116½	116½	+ ¼
33½	18¾	33½	23¾		25,000,000	25	Barnsdall Corp. A	50cQ	Jan. 3, 27	88,700	33¼	34¼	32⅞	33⅛	+ ⅛
30	16	29½	22½		3,713,275	25	do B	50cQ	Jan. 3, 27	5,200	30	30⅞	30	30¾	+ ¾
34⅜	23⅞	38⅛	29¾	$	47,594,950	$ 25	California Petroleum	50cQ	Dec. 1, 26	100,100	31½	31⅜	x30½	30½	— ¼
70	42½	94½	50		28,631,200	100	General Asphalt	.....	.....	80,700	84	86⅜	82⅝	82⅝	— ¾
109	86½	140⅛	94⅞		7,354,000	100	do pfd	$1¼Q	Dec. 1, 26	.....	.....	.....	.....	.....	.....
85	59	72	50¼		25,000,000	100	Houston Oil	.....	.....	19,600	87	90	85	85½	— 1¼
41¾	13½	34	19⅝	(sh)	500,000	N.P.	Independent Oil & Gas	25cQ	Jan. 17, 27	31,100	32½	32⅝	29⅝	30¼	— 1⅝
14¼	5½	13¾	7⅜	$	3,283,960	$ 10	Indian Refining	.....	Dec. 15, 20	1,200	9	9¼	8⅞	9⅛	+ ⅛
12⅝	6	12½	7½		4,546,490	10	do ctfs	.....	.....	9,200	8⅞	9½	8¾	8¾	— ¼
110	77	104	90		2,296,400	100	do pfd	.....	Dec. 15, 21	100	102	102	102	102	— 5
1½	¼	¾	¼		1,644,760	10	Kansas & Gulf	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	24½	19⅛	(sh)	4,000,000	N.P.	Lago Oil & Transport	.....	.....	1,000	21⅝	21⅝	20¾	21½	+ ¾
28¾	13⅜	19⅞	12	(sh)	1,134,238	N.P.	Louisiana Oil Refining	.....	.....	16,200	16⅜	16⅜	15½	15½	— ⅜
.....	.....	97	93	$	4,000,000	$100	do pfd	$1⅝Q	Feb. 15, 27	200	95½	95½	95¼	95¼	+ ¼
35½	20⅜	28⅞	16½	(sh)	330,000	N.P.	Maracaibo Oi	.....	.....	2,500	20	20¼	19	19	+ ½
60½	32⅝	63⅜	49¼	(sh)	2,349,763	N.P.	Marland Oil Co	$1Q	Dec. 31, 26	60,500	57⅜	58½	56½	56½	— 1
$50	$25	.....	.....		45,942,800	$100	Mexican Petroleum	$3Q	Jan. 20, 27	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....		12,000,000	100	do pfd	$2Q	Jan. 20, 27	.....	.....	.....	.....	.....	.....
22½	29	13¾	6	(sh)	945,939	N.P.	Mexican Seaboard	.....	Nov. 15, 24	9,000	7⅛	9¼	7⅛	8	+ 1
38	25¾	37	27½	(sh)	1,357,800	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 23	50,400	37¼	38¼	35¾	36	— 1¼
94¼	83	104¼	90	$	6,718,000	$100	do pfd	$1¾Q	Dec. 1, 26	400	103	103¼	x103	103	— ¼
3¼	⅝	2½	¾		25,415,540	10	Midwest States	.....	July 1, 23	37,700	3	3	2⅞	2⅞	— ⅛
1½	1½	1¼	½		4,384,680	.....	do ctfs	.....	.....	2,500	1⅞	1⅞	1¾	1¾	— ⅛
78½	51⅝	83¼	1	(sh)	3,500,000	N.P.	Pacific Oil	.....	Jan. 20, 26	11,200	1⅝	1⅝	1½	1½	— ⅛
83⅞	59½	76½	56⅛	$	48,307,400	$ 50	Pan American P. & T	$1.50Q	Jan. 20, 27	1,500	64	64½	63¼	63¼	— ¾
84½	60⅛	78⅜	56⅞		91,246,000	50	do B	$1.50Q	Jan. 20, 27	27,600	64½	65½	64	64	0
49¾	37¼	46	30	(sh)	400,000	N.P.	Pan American Western B	50cQ	Jan. 30, 27	1,800	35¾	36¾	35½	35⅝	+ ⅛
6¼	2¼	32	4½	(sh)	198,770	N.P.	Panhandle P. & R	.....	.....	5,200	16¼	16⅞	15⅝	15⅝	— ⅜
60½	37	99⅜	51	$	2,935,200	$100	do pfd	.....	July 2, 23	.....	.....	.....	.....	.....	.....
47⅛	36¼	57⅜	40	(sh)	2,406,736	N.P.	Phillips Petroleum	75cQ	Jan. 1, 27	118,500	58½	60¼	58	58¾	+ ¼
3½	1¼	1⅞	½	$	29,622,925	$ 25	Pierce Oil Corp	.....	.....	6,000	¾	¾	⅝	⅝	— ⅛
40	20¼	27⅛	11⅛		15,000,000	100	do pfd	.....	Feb. 1, 22	100	15	15	14½	14½	0
8¼	4½	7	2½	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	6,800	3½	3½	3	3¼	— ⅜
82⅝	12½	20⅞	11	$	11,467,850	$ 50	Producers & Refiners	.....	Sept. 15, 23	36,200	31	31⅜	27	27½	— 3
47⅝	27	41¾	30¾		2,845,350	50	do pfd	.....	May 1, 25	2,090	48	48½	43⅞	47⅞	— ⅝
33¾	25⅛	31	25¼		75,959,250	25	Pure Oil Co	$7½cQ	Dec. 1, 26	417,600	28⅞	32⅜	28⅞	30¾	+ 2⅛
108½	103	112¾	106		18,000,000	100	do 8% pfd	$2Q	Jan. 1, 27	.....	.....	.....	.....	.....	.....
57⅜	48¼	57⅜	47⅜	(sh)	659,082	13.40	Royal Dutch, N. Y. shares	$1.33¼	Jan. 28, 27	5,500	52¾	53¼	52	52	— 1¼
49	39½	48⅝	40¾	(sh)	87,685	£2	Shell Transport & T	96.7c	Jan. 17, 27	.....	.....	.....	.....	.....	.....
28⅜	21⅝	30⅞	24	(sh)	10,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 26	12,100	31½	31¾	30⅝	31	— ⅝
106½	99½	114	103	$	18,350,400	$100	do pfd	$1½Q	Feb. 15, 27	100	108½	108½	108½	108½	+ ⅛
28½	17¾	28⅝	15⅛		7,208,080	10	Simms Petroleum	50cS.A.	Jan. 3, 27	25,100	21¾	22¾	21¾	21¾	0
24⅞	17	24⅞	16¾	(sh)	4,500,632	N.P.	Sinclair Consolidated	.....	May 31, 24	71,300	21¼	22⅛	21¼	21¼	+ ⅛
94⅛	78¾	99½	90	$	17,528,300	$100	do pfd	$2Q	Feb. 15, 27	1,000	102½	103	102½	102½	0
82⅛	21¾	36⅞	26⅝		27,393,090	25	Skelly Oil Co	50cQ	Dec. 15, 26	80,200	35⅞	37	x35⅝	36⅞	+ 1¾
.....	.....	63¾	52⅝	(sh)	13,016,434	N.P.	S. O. California	50cQ	Dec. 15, 26	11,200	59½	59¾	x58	58⅛	— ¾
47½	38⅜	46⅜	37½		517,064,800	25	S. O. New Jersey	25cQ	Dec. 15, 26	58,000	39⅞	40¼	x38¾	38¾	— 1
119	116¼	119⅛	115		199,972,900	100	do pfd	$1¾Q	Dec. 15, 26	1,500	116⅛	116⅛	116⅛	116⅛	0
.....	.....	33¼	32½		421,750,400	25	S. O. New York	40cQ	Dec. 15, 26	27,600	33⅜	33¾	32⅜	32⅜	— ⅝
43⅞	38⅛	41⅜	30⅛	(sh)	1,171,951	N.P.	Sun Oil	25cQ	Dec. 15, 26	1,300	33½	33½	33	33	0
6⅛	2	5¼	1	(sh)	1,121,368	N.P.	Superior Oil Corp	.....	Dec. 20, 20	109,900	4¾	6½	4¾	6¼	+ 1⅜
55	42¾	58	48	$	88,092,200	$ 25	The Texas Co	75cQ	Dec. 30, 26	2,100	56⅞	57⅜	56⅜	56⅝	— ⅜
.....	.....	57⅞	53½		28,599,300	25	The Texas Corp	75cQ	Jan. 1, 27	13,800	56¾	57½	56⅝	56¾	— ½
23¾	10⅞	19½	12		8,380,340	10	Texas Pacific Coal & Oil	.....	June 30 23	15,300	15⅛	15¾	14⅞	15	— ¼
36⅞	30¼	39¼	27	(sh)	2,138,543	N.P.	Tide Water Oil Co	$7½c	Dec. 31, 26	100	27½	28⅝	27½	28⅛	+ 1⅜
101	99	103	87¼	$	20,705,100	$100	do 5% pfd	$1.25Q	Feb. 15, 27	700	88⅜	88½	88	88⅛	— ⅛
5⅞	3½	5½	3	(sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	101,400	4⅝	5	4⅝	4¾	+ ⅛
43⅜	38	58⅜	37¼	$	40,668,950	$ 25	Union Oil of California	50cQ	Feb. 10, 27	16,300	53	53⅞	52¼	53	— ⅜
134	96¼	120	80		24,423,300	100	Union Tank Car Co	$1¼Q	Dec. 1 26	400	97¾	97¾	97½	97¾	+ 1
117⅛	113¼	118	113¼		12,000,000	100	do pfd	$1¾Q	Dec. 1, 26	.....	.....	.....	.....	.....	.....
81¾	25½	29¼	25⅛	(sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 27	11,500	26¾	27½	26⅝	26¾	⅛

*New High †New Low xEx-Dividend Total Sales 3,477,943

Cleveland Stock Market

Feb. 18

	Par	Bid	Asked	Last Sale
Canfield Oil Co	$100	.....	.....	110
do pfd	100	.....	100	100
Fred G. Clark Co	10	.....	3	3¼
National Refining Co	25	35⅜	39	37
do pfd	100	128	130	130
Paragon Refining Co	25	6⅜	7	6¼
do pfd	100	66½	72	70

xEx-dividend

OIL DIVIDENDS

	Amt.	Payable	Stock of Record
Chesebrough Mfg. q	$1	Mar. 31	Mar. 10
Cities Service m	½%	Apr. 1	Mar. 15
do stock m	½%	Apr. 1	Mar. 15
do pfd. m	½%	Apr. 1	Mar. 15
do pfd. B m	½%	Apr. 1	Mar. 15
Continental Oil q	30c	Mar. 15	Feb. 14
Imperial Oil q	25c	Mar. 1	Feb. 15
do extra	12½c	Mar. 1	Feb. 15
Ohio Oil q	50c	Mar. 15	Feb. 14
do extra	50c	Mar. 15	Feb. 14
Shell Union q	35c	Mar. 31	Mar. 1
S. O. Indiana q	62½c	Mar. 15	Feb. 16
do extra	25c	Mar. 15	Feb. 16
S. O. Nebraska q	63c	Mar. 21	Feb. 28
do extra	25c	Mar. 21	Feb. 28
S. O. New Jersey q	25c	Mar. 15	Feb. 25
do extra	12½c	Mar. 15	Feb. 25
do pfd. q	$1.75	Mar. 15	Feb. 25
S. O. New York q	40c	Mar. 15	Feb. 18
S. O. Ohio q	$2.50	Apr. 1	Mar. 15
Sun Oil q	25c	Mar. 15	Feb. 25

PITTSBURGH STOCK EXCHANGE

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended Feb. 18 Sales	First	High	Low	Last	Ch'ge
.....	.....	8½	6⅝	N.P.	Andes Petroleum	.....	.....	.....	.....	.....	.....
8¼	5¼	8½	5¾	$10	Arkansas Nat. Gas	1,100	7¾	7¾	7¾	7¾	0
.....	.....	90½	79¾	$100	Columbia Gas (w.i.)	20	83½	.....	.....	.....	0
.....	.....	.....	.....	.....	do rts	1,153	2⅞	3¼	2⅞	3	+ ⅛
.....	.....	101¾	95	$100	do pfd w.i	80	101	.....	.....	.....	+ ¾
18	14½	17	12½	$10	Devonian Oil	377	14	14	13½	13½	— ½
112¾	105⅛	116½	112	$100	Duquesne Lt. 7% pfd.	20	115½	115½	115	115	—1
.....	.....	10	5⅛	N.P.	Houston Gulf Gas	650	6¼	6¼	6	6	— ¼
.....	.....	46	39	25	Lone Star Gas Corp	2,875	39⅛	39¼	38⅛	38⅛	— ⅛
37¾	31	47⅜	33⅜	25	Ohio Fuel Corp	.....	*	.....	.....	.....	.....
.....	.....	47½	42	....	do ctfs. of deposit	1,430	21⅜	.....	.....	.....	.....
.....	.....	6¾	5	....	Ohio Oil & Gas	.....	.....	.....	.....	.....	.....
34	26	34	21	25	Oklahoma Nat. Gas	.....	.....	.....	.....	.....	.....
.....	.....	21	19¼	....	do ctfs. of deposit	1,430	21⅜	21⅜	21¼	21¼	— ⅛
8¾	5	5⅝	3¾	5	Pittsburgh O. & G	100	3¾	.....	.....	.....	— ¼
9⅝	6	10	7½	10	Salt Creek Cons	120	8	8	7⅞	8	+ ⅛
13¾	8½	27	8	10	Tidal Osage	1,200	24¾	24⅞	24	24⅛	+ ⅛
.....	.....	45	40	N.P.	Waverly Oil Wks. "A"	25	42	.....	.....	.....	0

PITTSBURGH CURB MARKET

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended Feb. 18 Sales	First	High	Low	Last	Ch'ge
2½	.60	3⅜	2½	$5	Colombia Synd	.....	.....	.....	.....	.....	.....
.60	.15	.20	.06	5	Duquesne Oil	.....	.....	.....	.....	.....	.....
9	5½	22	22	10	Forest Oil	.....	.....	.....	.....	.....	.....
82⅝	64	91½	85	25	Gulf Oil Corp	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	....	Herbert Oil	.....	.....	.....	.....	.....	.....
.....	.....	79	79	100	Houston Gulf pfd	.....	.....	.....	.....	.....	.....
12½	3¼	12	7½	N.P.	Leonard Oil & Dvlp	7,200	10½	10¾	10	10	0
.....	.....	1⅝	1⅜	N.P.	Mountain & Gulf	.....	.....	.....	.....	.....	.....
.....	.....	30¼	29	....	Oklahoma Gas	40	31¼	.....	.....	.....	— ¼
.47	.20	2	.15	10	Omar O. & G	8,400	2.25	2.25	2.00	2.00	—.25
.....	.....	2	1¼	5	Pittsburgh Oil Dev	.....	.....	.....	.....	.....	.....
27½	25	33½	20	10	Plymouth Oil	600	26½	26½	26	26	— ¾
7	3	7	3	5	States Oil	.....	.....	.....	.....	.....	.....
4	1⅞	3½	2	$1	Texon Oil & Land	1,300	3	.....	.....	.....	+ ¼
.....	9	25¾	8	10	TidalOsage(non-voting)	.....	.....	.....	.....	.....	.....

*New High †New Low xEx-Dividend ‡Ex-Rights

Standard Oil Stock Traded in New York

1925 High	1925 Low	1926 High	1926 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Feb. 18 Sales	First	High	Low	Last	Ch'ge
26⅝	17¼	21	16⅜	£ 4,000,000	£1	Anglo American	60¾cS.A.	May 27, 26	600	21	21¼	20¾	20¾	— ⅜
.....	.....	20¼	16½	.....	£1	do ctfs no -votg	.....	.....	100	20⅜	20⅜	20⅜	20⅜	0
.....	.....	19	19	.....	.....	do voting ctfs	.....	.....	.....	.....	.....	.....	.....	.....
4¼	1⅜	2¼	¾	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	100	1¼	1¼	1¼	1¼	+ ⅛
12⅝	8	5	3½	$ 10,000,000	$ 10	do pfd	.....	.....	100	3	3	3	3	0
240	205	301	226	1,000,000	100	Borne Scrymser	84S.A.	Oct. 15, 26	60	69	69	65	65	— 4
.....	.....	70	49	.....	....	do new	.....	.....	.....	.....	.....	.....	.....	.....
72	53½	59½	42	10,000,000	50	Buckeye Pipe Line	81Q	Dec. 15, 26	200	48½	48½	48¼	48¼	+ 1
74	48½	82½	65	3,000,000	25	Chesebrough Mfg	75cQ	Dec. 28, 26	100	82	82	82	82	+ 1
115	110	.....	.....	1,000,000	100	do pfd	81¾Q	Sept. 30, 26	.....	.....	.....	.....	.....	.....
31	21⅞	25⅞	17⅝	34,914,280	10	Continental Oil	25cQ	Dec. 15, 26	11,700	21⅝	21⅝	x20⅝	20⅜	— 1¼
17½	10	17	13½	1,500,000	25	Crescent Pipe Line	.....	Sept. 15, 23	.....	.....	.....	.....	.....	.....
156	132	137	102	3,000,000	100	Cumberland Pipe Line	83Q	Dec. 15, 26	3,900	126½	129½	126	129½	+ 1½
96	61	63¾	43	5,000,000	100	Eureka Pipe Line	81Q	Feb. 1, 27	450	50⅛	50⅛	48½	50	+ ⅜
68½	23½	32½	9⅞	16,000,000	100	Galena Signal Oil	.....	June 30, 25	100	13½	13½	13½	13½	0
105	88	94½	35	4,000,000	100	do new pfd	.....	June 30, 26	10	50	50	50	50	— 1½
114	95	97½	45	2,000,000	100	do old pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
95	42¼	68¼	52	72,916,650	25	Humble Oil & Refining	30cQ	Jan. 1, 27	10,600	60½	60¾	57¾	58⅜	— 1⅞
154½	127	144½	125¼	20,000,000	100	Illinois Pipe Line	86S.A.	Dec. 15, 26	1,500	140	140½	135	136	— 4½
39¼	27¼	39¾	31½	(sh) 6,491,852	N.P.	Imperial of Canada	25cQ	Dec. 1, 26	28,200	44¾	46	x44	44¼	— ½
84	57⅛	70	54¼	$ 5,000,000	50	Indiana Pipe Line	81Q	Feb. 15, 27	2,700	67½	68	65	68	+ 1
35⅜	22⅛	35¼	28¾	(sh) 7,118,138	N.P.	International Petroleum	25c	Nov. 15, 26	34,500	34⅜	34⅞	33⅜	33½	— ¾
25⅝	16½	20⅝	12½	$ 6,362,500	$12½	National Transit	25cQ	Dec. 15, 26	900	13⅞	13⅞	13⅜	13¾	+ ⅜
79	49¼	51½	27⅛	5,000,000	100	New York Transit	.....	July 15, 26	150	33	33¼	33	33¼	— 1
88	67½	80½	64	4,000,000	100	Northern Pipe Line	83S.A.	Jan. 1, 27	350	77	79¼	77	79¼	+ 4¾
75¼	60¼	67⅜	55¾	60,000,000	25	Ohio Oil Co	50cQ	Dec. 15, 26	7,400	63⅜	64¼	x61	61½	— 2½
44½	19	24¾	15	10,000,000	25	Penn Mex Fuel	.....	May 21, 25	100	18	18	18	18	— ½
65½	45⅞	60¼	48	60,000,000	25	Prairie Oil & Gas	50cQ	Nov. 30, 26	15,200	53⅞	54½	52⅜	53	— 1
129¾	106	137½	122¼	81,000,000	100	Prairie Pipe Line	82Q	Jan. 31, 27	.....	.....	.....	.....	.....	.....
254	200	220	184½	4,000,000	100	Solar Refining Co	85S.A.	Dec. 20, 26	3,500	201	201	200	200	— 1½
103	63	74½	21	10,000,000	100	Southern Pipe Line Co	.....	Mar. 1, 26	.....	.....	.....	.....	.....	.....
47½	45	50	34½	20,000,000	25	South Penn Oil Co	50cQ	Dec. 31, 26	200	38¼	38¼	38¼	38¼	— ¾
84	50	56⅛	49	3,500,000	100	South West Pa. Pipe Line	81Q	Dec. 31, 26	50	57¾	57¾	57¾	57¾	0
70¾	59½	70½	60½	$ 223,756,258	$ 25	S. O. Indiana	62½cQ	Dec. 15, 26	46,200	71⅜	72	x70¼	71⅜	0
46	30⅛	36½	16½	8,000,000	25	S. O. Kansas	.....	June 16, 24	1,600	19½	19⅜	19	19	— ⅜
137	114¾	134⅝	108	16,864,434	25	S. O. Kentucky	81Q	Dec. 31, 26	1,800	119⅞	120⅝	119½	119⅝	— ⅛
.....	.....	51⅛	42	4,518,000	25	S. O. Nebraska	62cQ	Dec. 20, 26	800	49	49¼	49	49	+ ⅛
.....	.....	.....	.....	.....	....	S. O. N. J. w. i	.....	.....	2,700	40⅛	40⅛	38¾	38¾	— 1
369	338	365	288	14,000,000	100	S. O. Ohio	82½Q	Jan. 1, 27	210	345	345	335	335	—10
123	116	122	117	7,000,000	100	do pfd	81¾Q	Dec. 1, 26	20	118¼	118¼	118¼	118¼	+ ¼
27	12	23	15	1,722,931	25	Swan-Finch Co	.....	Nov. 1, 19	200	16	16	16	16	+ ½
109½	80⅛	112	90¼	61,919,950	25	Vacuum Oil Co	50cQ	Dec. 20, 26	8,000	102¼	104½	102	102	— ¼

NEW YORK BONDS

Week Ending Feb. 18

	High	Low	Last	Ch'ge
Amer. Rep. Deb. 6s	99¾	99½	99½	— ¼
Assoc. Oil gold 6s	102¾	102⅝	102⅝	— ⅛
Atlantic Refg. deb. 5s	101½	100⅞	101½	+ ½
Barnsdall Corp. 6s	106	104⅝	105	+ ¼
Barnsdall Corp. 6s ex war	92¾	92¼	92¾	0
Cal. Petrol. sf 6½s	103½	103½	103½	0
Cal. Petrol. 5½s	101⅜	101	101	— ⅛
Cal. Petrol. 5s	96¾	96½	96¾	0
Empire Gas & Fuel 7½s	108⅜	108	108	— ⅛
Empire Gas & Fuel 6½s	104¼	102¼	104¼	+ ¾
Gen. Petroleum 5s	100⅞	100½	100½	— ½
Humble Oil & Refg. 5½s	102⅝	102⅜	102½	— ¼
Mid-Cont. Pet. 6½s	105¼	105	105⅛	+ ⅛
Pan-Amer. P & T 6s	106	105½	105¾	+ ⅛
Pan-American Pet 6s	100¼	99¾	99¾	— ¾
Pierce Oil Corp. sf 8s	100¾	100½	100½	— ¼
Prod. & Refnrs. 8s	111	111	111	0
Simms Pet. cvt. 6s	105	103½	103⅝	+ ¼
Sinclair Con. Oil Col. 7s	102¼	101½	101¾	+ ¼
Sinclair Con. Oil Con. 6½s	101	100¼	100⅝	— ¼
Sinclair Con. Oil 6s	101¾	101	100⅜	— ½
Sinclair Crude Oil 6s	100⅞	100¼	100⅝	— ¼
Sinclair Pipe Line sf 5s	94¾	94⅜	94¾	0
Standard Oil N. J. deb. 5s	102¼	101⅞	102¼	+ ¼
Union Oil of Cal. 6s-A	109	108⅝	109	+ ½
Union Oil of Cal. 5s-B	101¾	101¾	101¾	— ¼
Union Oil of Cal. 5s-C	99⅛	99	99	— ⅛

NEW YORK CURB BONDS

Week Ending Feb. 18

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	102⅜	102	102¼	+ ½
Cities Serv. 6s '66	102¾	102	102¾	+ ⅝
Cities Serv. 7s "D" '66	133¼	131¾	133¼	+1⅜
Galena S O 7s '30	92½	92	92	— ½
General Pet. 6s '28	101⅛	100¾	101	— ⅛
Gulf Oil 5s '37	100¼	100	100¼	0
Independent Oil 6½s '31	102¾	102¾	102½	0
Pure Oil 6⅛s '33	103⅛	103⅛	103⅛	0
Richfield Oil 6s wi '41	99	99	99	0
S. O. N. Y. 6½s '33	105¼	104¾	104¾	— ¼
S. O. N. Y. 4½s '51	95⅝	95⅜	95½	— ⅛
Sun Oil 5½s '39	100¼	100	100¼	+ ¼
Trans. Cont. Oil 7s '30	99⅞	99½	99⅞	+ ½
United Oil Prod. 8s '31	70	69	69	—1
Valvoline 7s '37	105	105	105	+ ½

NEW ULM, MINN.—Merchants Oil Co. has been organized here by Emil G. Hempel and A. C. Stoltenburg to market Tidal gasoline and Veedol motor oil.

Two 1700-gallon storage tanks and unloading equipment have been installed.

New York Curb Market

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended Feb. 18 Sales	First	High	Low	Last	Ch'ge
11½	2⅛	14½	4	$ 5	Amer. Maracaibo	17,200	5¼	5½	4⅞	5⅛	0
8⅜	5	8⅜	5¾	$ 10	Arkansas Nat. Gas	900	8	8	7¾	7¾	— ⅛
.....	.....	19⅜	14⅛	N.P.	Beacon Oil	1,600	18	18	17¾	17⅞	— ⅛
47½	38	83½	82	$ 25	British-American	200	23⅞	23⅞	23½	23½	— ⅛
10¾	2¾	28⅜	9¾	25c	Carib. Syndicate	42,100	24¼	24¼	23⅛	23⅛	— ¾
43	35	51	37½	$ 20	Cities Service	58,400	57⅞	58½	x57½	58½	+ ¾
85½	80¼	92½	82¾	100	do pfd	3,600	92	92¼	x91½	91⅝	— ⅜
8	7¼	8⅜	7⅜	10	do pfd. B	100	8⅜	8⅜	x 8⅜	8⅜	0
21¾	17½	25¼	19	10	do bankers' sh	300	28¾	29	x28¾	29	+ ¼
2¾	.60	3½	1¾	N.P.	Colombia Syndicate	23,500	2⅛	2⅛	2⅛	2⅛	— ⅛
15	8¼	16	10	N.P.	Creole Syndicate	18,100	14⅝	14½	13½	13⅝	— ⅛
12¼	5	7⅜	1⅝	N.P.	Crown Central	1,300	2½	2⅝	2½	2⅝	+ ⅛
7	2	4	1⅛	N.P.	Derby Oil & Ref	600	1½	1¾	1½	1¾	+ ¼
27	10½	19	13	N.P.	do pfd	200	10½	10⅞	10½	10⅞	+ ⅛
.....	.....	2¼	.60	....	Euclid Oil	.....	.....	.....	.....	.....	.....
6	1⅜	7½	2½	N.P.	Gibson Oil	33,500	3	3¼	3	3⅛	0
3¾	1⅛	2	.63	N.P.	Gilliland v.t.c	600	1	1	.95	.95	—.05
98¾	63½	98	82	$ 25	Gulf Oil Corp	3,800	94¾	96	94¼	95½	+ ¼
5⅞	2¼	4	1	N.P.	Kirby Petroleum	100	1¾	1¾	1¾	1¾	0
13	6	12¼	5¾	N.P.	Leonard Oil & Dev	24,000	9⅝	10⅞	9⅝	10	— ½
25⅞	18	27	20	N.P.	Lion Oil Refining	2,300	26⅞	27	26½	26⅞	0
.....	.....	46	31½	$ 25	Lone Star Gas	300	39⅛	39¼	38⅞	38⅞	— ¼
4¼	1¾	3⅛	1½	N.P.	Marland of Mexico	.....	.....	.....	.....	.....	.....
5⅜	.56	5½	1⅜	$ 10	Mexican-Panuco	5,900	2	2¼	2	2¼	+ ⅛
2	1	1⅜	1¼	1	Mountain & Gulf	1,000	1⅜	1½	1⅜	1½	+ ⅛
26¼	18⅜	26	22½	10	Mountain Prod	3,700	26¼	26⅜	26	26	0
6¾	3⅜	6¾	5	5	New Bradford	200	5⅝	5⅝	5½	5½	+ ⅛
24⅜	16¼	11¾	2	10	New England Fuel	300	5½	6	5½	6	+ ⅜
19¾	6¼	17	9⅛	1	New Mex. & Ariz	7,500	12½	13¾	12½	13¾	+ 1½
12½	8¼	17	8	25	New York Oil	.....	.....	.....	.....	.....	.....
37	14	36	34¼	25	Ohio Fuel Corp	.....	.....	.....	.....	.....	.....
.....	.....	9⅞	6	N.P.	Pandem	3,900	7⅞	7⅞	6¾	6¾	— ⅛
2½	.90	2¾	.20	N.P.	Peer Oil Corp	1,000	35	35	35	35	0
28½	16	22¾	12	$ 10	Pennok Oil	500	11½	11¾	11½	11¾	— ¼
44½	16	38	14⅛	25	Red Bank Oil	100	22	22	22	22	0
33½	19	28¾	12	N.P.	Reiter-Foster	1,000	12⅞	13	12	12	0
.....	.....	27½	22	$ 25	Richfield Oil w.i	200	25½	25½	24¾	24¾	— ¾
9½	3½	7½	4½	N.P.	Ryan Consolidated	2,000	6⅛	6⅜	5⅝	5⅝	— ⅛
9¾	6⅛	10	7½	$ 10	Salt Creek Cons	700	7⅞	7⅞	7¾	7¾	— ⅛
35	24	36	26⅞	10	Salt Creek Prod	2,100	31	31⅜	31	31	— ⅛
3⅞	1	4⅜	1⅛	5	Savoy Oil	1,600	5	6	5	6	+ ¼
13¾	9	27	7⅜	10	Tidal Osage	2,200	24⅞	24⅞	24¼	24¼	+ ¼
10⅞	8	25¾	8¼	10	do non-voting	5,400	22	22	21½	21½	— ¼
.....	.....	27	20⅞	N.P.	Tide Water Assoc	5,300	22½	22¾	22¼	22½	— ¼
.....	.....	99¼	93¾	100	do pfd	1,200	95	95	94½	94¾	— ⅛
4⅞	1¾	8	4¼	5	Venezuelan Pet	8,400	6⅞	7⅛	6¾	7	+ ⅛
.....	.....	29¾	23½	N.P.	Warner-Quinlan	.....	.....	.....	.....	.....	.....
31¼	22½	36⅛	22	N.P.	Wilcox O. & G. new	1,400	29½	29¼	28½	29	— ¼
7	3⅞	9½	4⅜	$ 1	Woodley Petroleum	500	7	7	6⅝	6¾	— ¼

*New High †New Low xEx-Dividend

that there would be no change in the plan of organization except to name his son chairman of the oil operating committee, thereby making him wholly responsible for production." Since that time, Craig Cullinan, son of J. S. Cullinan has headed the operating committee.

Directors of the American Republics Corp., except the president and himself, Mr. Lee said, are mainly employes with little or no real stock interest. He commended the employes as capable men, but charged they "blindly support the will of the president."

P. & R. Offices Will Be Moved to Independence

TULSA, Feb. 21.—General offices of the Producers & Refiners Corp. probably will be moved from Denver to Independence, Kan., where they will be housed in the same building with the Prairie Oil & Gas Co. The transfer will not be made until next fall, due to necessary preparations for housing the employees and obtaining office space.

The Prairie building at Independence is crowded as a result of the growth of the company. With the refining company move in prospect, the Prairie expects to add another wing.

About 80 employees will be affected by the move. About half of these are married. Officials of the Prairie have advised the Independence business men that they will have to build enough new homes if the move is to be made. This has been agreed to and about 40 will be built.

To further consolidate the activities of the Producers & Refiners Corp. it is planned to close the offices at Cheyenne, Wyo., and move employees to Parco, site of the Wyoming plant. This move cannot be made until spring because of the necessity of providing homes and office space.

Builds Plant on Hurry-Up Call

LOS ANGELES, Calif., Feb. 19.—The recently erected Richfield Oil Co. natural gasoline plant at Seal Beach is making about 6500 gallons of gasoline a day, the gas having a gasoline content of about four gallons to the 1000 cubic feet. This large output came as a surprise as it was not supposed that the gas was good for more than three gallons per M. The plant was erected under rush orders by J. A. Campbell, using his own equipment for the complete installation.

LOS ANGELES, Feb. 19.—Contract has been let to J. A. Campbell of Long Beach for the erection of a complete natural gasoline plant for the Cienega Corp. at Huntington Beach to run, or rather to re-run, gas from the line of the Southern Counties Gas Co. The plant will operate under 250-pound pressure and is a complete Campbell installation, with an expected daily capacity of 10,000 gallons of natural gasoline. The plant will be in operation about March 13.

THE OIL INDUSTRY EXCHANGE

Positions Wanted

MAN, 38, TWELVE YEARS EXECUTIVE OIL EXPERIENCE in traffic, refining, marketing and filling stations, desires connection with marketer, jobber or refiner. Can qualify as buyer, sales agent or general representative. Go anywhere, Houston, New Orleans or Florida preferred. Box 785.

SALES AND TERRITORY PROMOTION—Do you want to develop or add to your business in Iowa? Twelve years experience and a proven record of accomplishment in successfully developing territory for bulk storage and service stations. Thoroughly competent to take complete charge of sales and construction program. Some splendid openings now available. Box 789.

THE SERVICES of a man capable of assuming complete responsibility of operating successfully a group of Service Stations will be available first of April. Experience has been thorough and results will bear close investigation. Box 794.

SALES MANAGER—Twenty years experience marketing full line of petroleum products in the Eastern states; both consuming and jobbing trades. Box 795.

DESIGNING DRAFTSMAN with eight years experience oil refinery drafting and estimating, desires permanent location in South. Now employed. Box 796.

Situations Open

LUBRICANT SALESMAN

Leading Independent refiner desires services of salesman for quality lubricants in Oklahoma. Remuneration; salary and bonus. Give full particulars first letter.

SALESMAN, care National Petroleum News, Tulsa, Okla.

PETROLEUM ENGINEER WANTED with at least five years practical experience. A man with gas lift experience preferred. State experience, references and salary wanted in first letter. Address Drawer L, Bartlesville, Oklahoma.

EXPERIENCED GASOLINE PUMP SALESMEN WANTED

who are able to sell a real gasoline pump at a fair price and are able to earn real money on a straight commission basis.

Pennsylvania Pump Co., 25th & Smallman Sts., Pittsburgh, Pa.

SALESMAN WANTED

We want a capable man of character, clean record and intelligence to take charge of tank car sales. Must be thoroughly experienced and know where to sell. He must be making good in present position to receive consideration. References must accompany application. Salary depends on the man. Box 797.

Patent Attorneys

INVENTORS who derive largest profits know and heed certain simple but vital facts before applying for patents. Our book Patent-Sense gives those facts; sent free. Lacey & Lacey, 679 F St., Washington, D. C. Established 1869.

Wanted—To Buy

WELL EXPERIENCED BULK STATION MANAGER is interested in buying all or controlling interest in well located oil jobbing business. Give itemized list of equipment and monthly gallonage in first letter. Am looking for a bargain and nothing else will be given consideration. Address Box 148, Fort Worth, Texas.

WANT TO BUY SMALL JOBBING COMPANY in Western Indiana or Eastern Illinois. Not interested in filling stations as much as country tank stations. Address Box 792.

For Sale

SIX OIL AND GASOLINE RIVETED TANKS. One Bowser round gasoline tank 8 000 gallons. Two Bowser square oil tanks 8,000 gallons each. One Bowser square oil tank 10,000 gallons. Two round oil tanks 8 000 gallons each. Will sacrifice all for $1100. F. O. B. Detroit. Address Rudelic Coal Co.
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ADVERTISERS INDEX

National Petroleum News

Adamson Mfg. Co.
Alcorn Combustion Co.
Allison Coupon Co.
Aluminum Company of America
American Can Co.
American Oil Pump & Tank Co. 71
American Radiator Co.
American Schaeffer & Budenberg Corp. 61
American Steel Package Co. 90
American Telephone and Telegraph Co.
Associated Business Papers, Inc.
Association of Natural Gasoline Mfgrs. 87
Autocar Co.
Automobile Rotary Lift Co.

Baltimore Hotel.
Barnickel & Co., Wm. S. 86
Barnsdall Refineries, Inc. 98
Battenfeld Grease & Oil Co.
Benjamin Electric Mfg. Co.
Bennett Pumps Corp.
Bessemer Gas Engine Co. 84
Bethlehem Steel Co. 40
Biggs Boiler Works Co. 95
Birmingham Machine & Foundry Co.
Blackmer Pump Co.
Blaw-Knox Co. 82
Bowser & Co., Inc., S. F. 2
Braun & Co., C. F.
Brookins Mfg. Co.
Brown Sheet Iron & Steel Co. 100
Buckeye Boiler Co.
Buckeye Iron & Brass Works
Budd Wheel Co.
Buffalo Meter Co. 90
Burrell Co., Geo. A.
Butler Mfg. Co.
Byron Jackson Pump Mfg. Co., Inc. 55

Campbell, J. A.
Canfield Oil Co., Cleveland 78–79
Celite Products Co.
Central Commercial Co.
Champion Pneumatic Mach. Co. 89
Champion Tank & Mfg. Co.
Champlin Refining Co.
Chestnut & Smith Corp. 10
Chipman Chemical Engineering Co., Inc.
Cincinnati Advertising Products Co.
Clark Co., Fred G.
Classified Advertising Section 111
Cleveland Steel Barrel Co.
Columbian Steel Tank Co.
Continental Ref. Co.
Continental Supply Co. 69
Correct Measure Co. 66–67
Crown Central Petroleum Corp. Outside Back Cover
Curtis Pneumatic Machinery Co.
Cushing Refg. & Gasoline Co.

Davis Welding & Mfg. Co.
Dawes Electric Sign & Mfg. Co.
Dayton Air Compressor 93
Dayton Pump & Mfg. Co.
Dearborn Chemical Co. 61
Deepwater Oil Refineries
Des Moines Foundry & Machine Co.
Draper Mfg. Co. Inside Back Cover
Dunning Compressor Co.
Du Pont de Nemours & Co., E. I.

Economy Engineering Co.
Edwards Mfg. Co.
Edward Valve & Mfg. Co.
Elk Refining Co.
Emerson-Scheuring Tank Co.
Empire Oil Works, Inc.
Empire Refineries, Inc.
Erie Meter Systems, Inc.
Ethyl Gasoline Corp.

Fairbanks, Morse Co. Insert
Farrell Mfg. Co.
Fiske Bros. Refg. Co.
Flexlume Corp.
Foamite-Childs Corp.
Foxboro Co., Inc.
Fogarty Mfg. Co., The
Frontier Mfg. Co.

Gasoline Register Co.
General American Tank Car Corp.
Gilbert & Barker Mfg. Co.
Globe Mfg. Co.
Globe Oil & Refg. Co.
Gomory, W. L.
Graham Brothers
Graver Corp. 1
Gray Processes Corp.
Greenspon's Sons Iron & Steel Co., Jos.
Groetken Pump Co.
Guarantee Liquid Measure Co. 8–9
Gulf Ref. Co. 88

Handy Oiler Co. 86
Hartol Products Corp.
Haynes Stellite Co.
Heil Co., The
Heine Boiler Co.
Hiergesell Brothers
Highland Body Mfg. Co.
Hope Engineering & Supply Co. 52
Hughes Tool Co.
Humble Oil & Refining Co.
Huntley & Huntley
Hurt Engineering Corp., G. F. 100

Illinois Glass Co.
Imperial Oil Marketing Co.
Independent Oil & Gas Co. 16
India Tire & Rubber Co.
International Harvester Co.
Irving-Iron Works Co.
Island Export Co.
International Derrick & Equip. Co. 42

Jenkins Bros. 60
Johns-Manville Co., H. W. 47
Johnson Fare Box Co.

Kanotex Ref. Co. 80
Keen & Woolf Oil Co. 74
Kellogg Co., M. W.
Kellogg Mfg. Co.
Kelly-Springfield Tire Co.
Kelly-Springfield Truck & Bus Corp.
Kewanee Safe Co. 15

Larkin-Thuro Corp. 13
Leader Iron Works.
Lewis-Shepard Co.
Lientz & Co., B. P. 87
Linde Air Products Co.
Luce Trunk Co. 95
Lummus Co., The Walter E.

Marland Refg. Co.
Mars Co.
Marvel Equipment Co.
McDonald Mfg. Co., A. Y.
McKee & Co., Arthur G.
Merco Nordstrom Valve Co.
Merit Oil Equipment Co.
Metal Hose & Tubing Co. 5
Metal Shelter Co.
Metric Metal Works.
Meyercord Co.
Miller & Co., Inc., Max B. 89
Miller Sons Co., A. D.
Milwaukee Tank Works.
Moore & Co., Lee C. 39
Morrison Bros.

National Carbon Co., Inc.
National Lead Co.
National Oil Products Co.
National Petroleum News. 6–12–76
National Recording Pump Co. Inside Front Cover
National Refining Co.
National Transit Pump & Machine Co. 60
Neil & Co., Wm.
New York Lubricating Oil Co.
North American Car Corp. 88

Ohmer Fare Register Co.
Oil Conservation Engineering Co.
Oil Well Supply Co.
Omar Refining Co.
Oxweld Acetylene Co. 81

Page Steel & Wire Co.
Pease Co., C. F.
Pennsylvania Flexible Metallic Tubing Co.
Pennsylvania Pump Co., Inc.
Pennsylvania Refg. Co. 94
Perfection Mfg. Co.
Petroleum Iron Works Co.
Petroleum Oils Corp.
Pforzheimer & Co., Carl H.
Pittsburgh-Des Moines Steel Co.
Pittsburgh Machine Tool Co.
Platt Co., W. C. 102
Power Specialty Co. 94
Pressed Steel Tank Co. 11
Prest-O-Lite Co.
Producers & Refiners Corp.
Professional Card Section
Pure Oil Co.
Pyrene Mfg. Co.

Quaker State Oil Refg. Co.
Quincy Compressor Co.

Ranney Oil Mining Co.
Rand McNally & Co.
Reading Iron Co. 89
Reading Steel Castings Co., Inc.
Rhodes Co., Jay B.
Robertson Steel & Iron Co., W. F.
Roper Corp., Geo. D.
Roxana Petroleum Corp. 14

St. Louis Can Co.
Safety Lift Co.
Schrayer & Co., Robert M.
Selden Truck Corp.
Service Station Equip. Co.
Shaffer Tool Works.
Sharpe Sales Co.
Sharpsville Boiler Works Co.
Shaw, S. F.
Shepard Corp., Arthur B.
Shotwell Pump & Tank Co.
Sinclair Refining Co. 96
Sistersville Tank & Boiler Works. 40
Skelly Oil Co.
Smith Corp., A. O.
Smith Separator Co.
Southwestern Engineering Corp.
Sowers Mfg. Co.
Spencer Petroleum Co.
Standard Boiler & Plate Iron.
Steel Drum Accessories Corp.
Steiner Oil Co.
Streett & Co., J. D.
Suender, W. Frederick.
Sun Oil Company.

Tagliabue Mfg. Co., C. J.
Texas Company, The
Texas Pacific Coal & Oil Co. 49
Tokheim Oil Tank & Pump Co. 65
Transcontinental Oil Co. 7
Truscon Steel Co.

Union Metal Mfg. Co.
United Filters Corp. 60
U. S. Air Compressor Co.
United States Can Co., The.
United States Cast Iron Pipe & Foundry Co.
Universal Oil Products Co. 50–51

Viking Pump Co.
Vilter Mfg. Co.
Vogt Machine Co., Henry. 91

Wackman Welded Ware Co.
Walworth Co. 8
Waverly Oil Works.
Wayne Co.
Westcott & Greis, Inc. 45
Wheaton Brass Works, A. W. 38
Wheeling Steel Corp. 41
White Eagle Oil & Refg. Co.
Widdell Engineering Co., Inc.
Williams Sealing Corp.
Williamson Advertising Service, W. F.
Wilsey Tuthill Pump.
Wilson & Bennett Mfg. Co. 75
Wilson Welder & Metals Co., Inc.

Youngstown Boiler & Tank Co. 4
Youngstown Welding Co., The.